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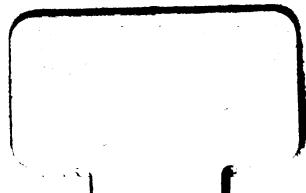
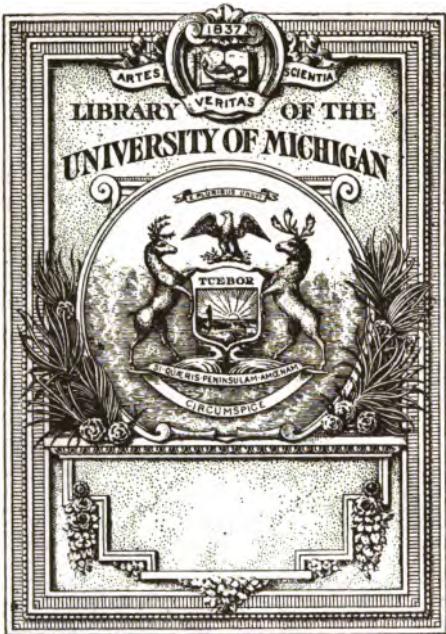
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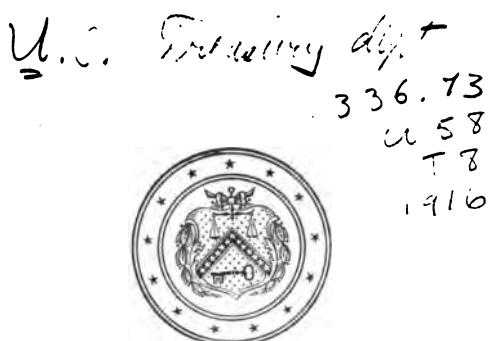
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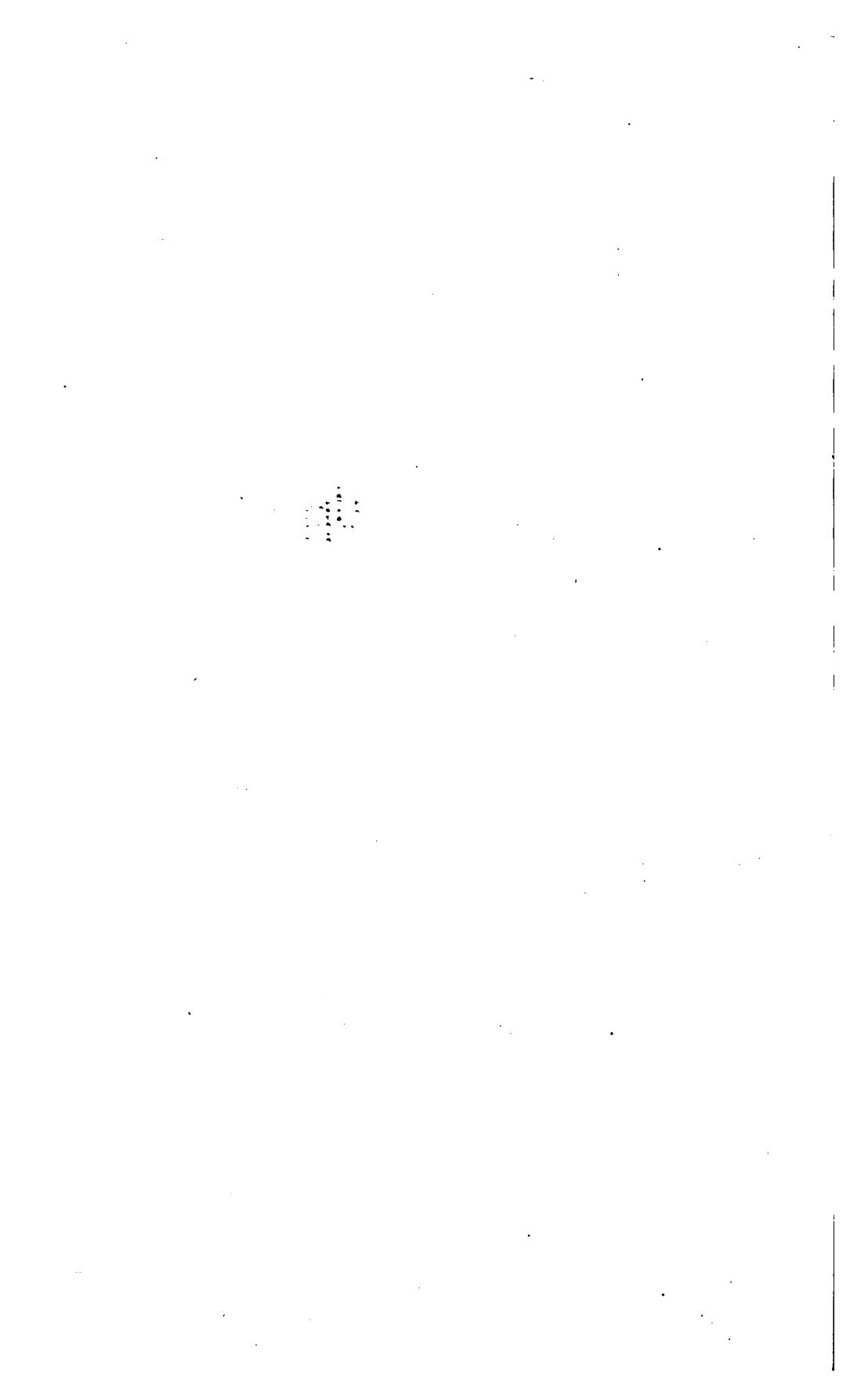
Proceedings of The Conference of Chiefs of Customs Laboratories

held at

The Port of New York, March 6-9, 1916



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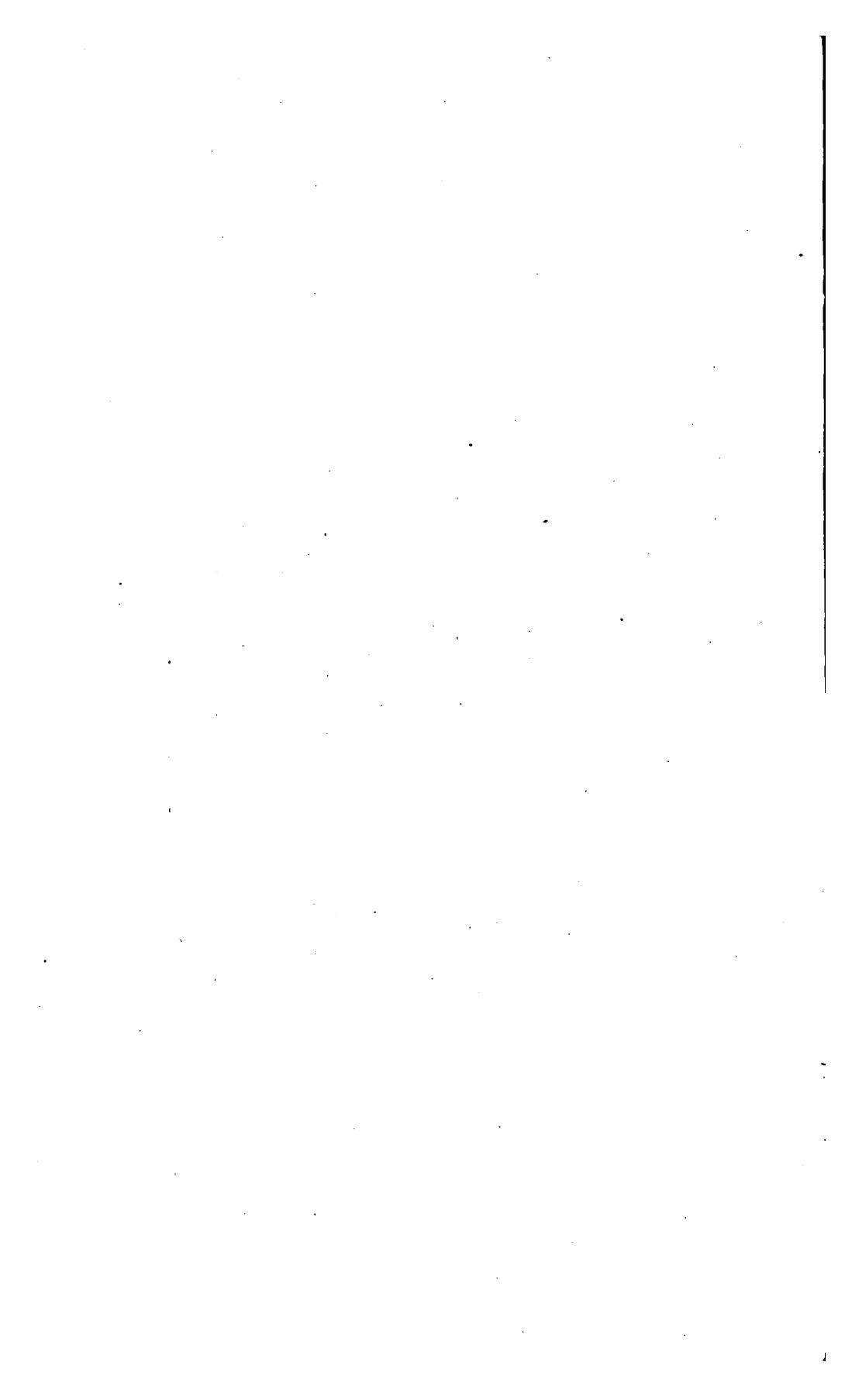
To collectors and other officers of the customs:

The appended proceedings of the Conference of Chiefs of Customs Laboratories, held at the port of New York, March 6 to 9, 1916, are published for the information of customs officers.

ANDREW J. PETERS,
Assistant Secretary.

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PROCEEDINGS OF THE CONFERENCE OF CHIEFS OF CUSTOMS LABORATORIES.

NEW YORK, MONDAY, *March 6, 1916.*

The following members attended the conference: F. J. Bates, Washington, D. C.; E. R. Pickrell, New York, N. Y.; J. A. Hynes, Chicago, Ill.; C. S. Curtis, Kansas City, Mo.; L. B. McSorley, Philadelphia, Pa.; W. L. Howell, New Orleans, La.; F. D. Simons, Baltimore, Md.; D. L. Coburn, Boston, Mass.; and Fred West, San Francisco, Cal.

The conference convened at 10.30 a. m. and was called to order by Mr. Bates.

Mr. BATES. Gentlemen, it gives me more pleasure than I can express to call the first, and let us hope the annual, conference of the chiefs of our customs laboratories to order. Unfortunately neither Assistant Secretary Peters nor the Chief of the Customs Division, Mr. Halstead, is able to be with us. I was only apprised of this fact on Saturday by receiving letters from each, which I am sure will be of interest to the members of the conference. These letters are as follows. The first is from Mr. Peters:

MARCH 3, 1916.

MY DEAR MR. BATES: It is with genuine regret that I find myself unable to attend the session of the Conference of Customs Chemists to be held in New York next week. Were it not for the fact that I sail for South America on the 7th I would most certainly have arranged to be present at the opening session of your conference. I appreciate fully the importance of such gatherings, which has been demonstrated by the excellent results obtained from the conferences of collectors of customs, appraisers of merchandise, and special agents, and I am anticipating like beneficial results from the conference of chemists. The gentlemen composing this conference are in charge of most important work and most difficult and technical work, and the department must depend upon the chemists in charge for increased efficiency in their departments, uniformity in practice, and economy in administration. These things are being acquired in other branches of the Customs Service, and I am confident that you are desirous of obtaining the same end in your branch of the service.

I wish to assure you of my anxiety that this conference shall be most successful in every way, and I also wish to assure you of the department's support in your efforts to secure a better and more efficient service. While I regret that I can not be with you, I shall look with confidence for the recommendations which your conference will make to the department.

With best regards, I am,
Sincerely yours,

A. J. PETERS, *Assistant Secretary.*

FREDERICK J. BATES, Esq.,
Sugar Examiner, Care of Collector of Customs,
New York, N. Y.

The second is from Mr. Halstead:

MARCH 4, 1916.

Mr. F. J. BATES, *Examiner.*

MY DEAR MR. BATES: I had intended to be in New York on next Monday morning to meet those in attendance at the Chemists' Conference. Some of them I have never met, and some of them for a few minutes only. However,

both the Secretary and Assistant Secretary Peters are leaving Washington on next Tuesday for an absence of two and one-half months. I think that you and all those in attendance at the conference will realize how impossible it would be for me to be away from Washington at this time. The general purpose of all these conferences is to so perfect our methods of procedure and our organization that the Customs Service will be an institution to which one may be proud to belong.

I know that every person attending this conference has become weary of the incessant slurs upon the inefficiency of governmental institutions. It is not sufficient to draw within our shells and ignore these expressions. We must look about us and see if they are well taken in whole or in part, and if we find that they are not, to boldly deny them; and if we find they are, to correct the deficiencies. As for myself, I have never yet been sufficiently confident to deny the truth of all these statements, and it has been my constant endeavor to put our service in a condition where I might do this. While it is exceedingly probable that our chemical laboratories rank high in their efficiency as compared with other branches of the service, yet it is impossible that they are perfect. Whatever may be done to avoid a waste of effort, duplication of processes, and to improve our methods should be done, and I confidently expect that these conferences will have some effect along these lines.

Very sincerely, yours,

F. M. HALSTEAD,
Chief, Division of Customs.

We are most fortunate in having with us this morning a high official of the Customs Service, and I will call upon Mr. Pickrell to present him to you.

Mr. PICKRELL. Gentlemen, I take great pleasure in introducing to you a man who has from the very day of his induction into his present Federal position taken the keenest interest in the scientific work as conducted in the chemical laboratories of the Customs Service. It has indeed been gratifying to me that I have had the opportunity of serving as a subordinate under him. I take great pleasure in introducing to you Hon. John K. Sague, appraiser of this port.

(Appraiser Sague welcomed the chemists and expressed his pleasure at the conference meeting in New York and also his belief that the conference would be of material value in establishing a higher standard of efficiency in the customs laboratories.)

Mr. BATES. I am sure that the members of the conference appreciate Mr. Sague's kindness in appearing before us this morning on the spur of the moment and that you have all enjoyed listening to him as much as I have.

In conferences of this character it is customary to have some permanent organization not only with regard to officers for the conference but to suggest any changes in matters of procedure and other exigencies which may arise from time to time. As a permanent organization it is customary to have a chairman, vice chairman, and a secretary. I am going to appoint Mr. Pickrell, Mr. Howell, and Mr. McSorley as a committee to bring in a report on permanent organization and any other suggestion which they may see fit to make. While this committee is acting I would suggest that an intermission be declared. I would like to hear a motion to that effect.

Mr. MCSORLEY. I move that we have an intermission of 15 or 20 minutes, or enough time in which to arrange matters.

(Motion seconded and carried. After an intermission of 15 minutes the conference reconvened.)

Mr. MCSORLEY. It is the sense of the committee that the permanent organization of this conference be made as follows: Mr. Bates, chairman; Mr. Pickrell, vice chairman; and Mr. Hynes, secretary;

that the hours of the conference be from 10 to 2 each day without intermission; and that the questions be taken up in the order as stated in the typewritten lists. It is hoped that discussion of the questions may be finished by the end of the second day, the third day to be devoted to informal discussion.

Mr. BATES. You have heard the report of the chairman of the committee. What is the pleasure of the conference?

Mr. CURTIS. I move it be adopted as read.

(Motion seconded and carried.)

Mr. BATES. Perhaps it is superfluous for me to remark that I appreciate very much the action of the conference in making me chairman of this session, and I shall do everything in my power to make the conference a success from every standpoint. Before proceeding to the questions I would like to say a few words regarding them. When the lists from the various ports arrived I was very much surprised to find the unanimity of opinion which existed among the members of the conference as to what were the most important and logical subjects for discussion at this particular conference. There was, because of this unanimity of opinion, a most unusual overlapping of the questions, and I found it necessary to discard the idea of accrediting to each port each question which it had proposed. The procedure which was adopted was to make a sort of composite question, where a number of ports had suggested the same question, which would represent as nearly as possible all the ideas involved. The name of the port which has been attached to each question is not intended to mean that credit should necessarily be given that port for suggesting the question. The question may have been suggested by several other ports.

Question 1. Is it advisable or practicable to establish a sort of central bureau through which information may be distributed to the port laboratories? (Chicago.)

Mr. HYNES. In asking that question I had in mind my own particular need in the case. That need is the need of the aid, advice, and help of members of all the ports in solving the multitude of questions that come up to each individual port. It is self-evident that no one man can be an expert in all of the things that come before the appraiser's chemists. It is also self-evident that if you could bring to bear upon the problems of the different ports the combined ability of the men of the various ports, the problems would be solved and questions answered as far as possible to do so. So that the question presented itself to me in this way: How can I avail myself of the ability and facilities of the assay office in Kansas City on the question of minerals and ores? How can I avail myself of the information on sugar value? Necessarily those in New York would be more familiar with that than the Chicago laboratory. How can I avail myself of the information on tea? Perhaps get it from San Francisco. That was the question I had in mind. It seemed to me that there ought to be some way to so organize the few customs laboratories that this information or information that the various ports may have could be brought to bear upon my individual problems, and that the help of the various chemists could be consolidated and used in solving any problem that I was unable to handle. Take, for instance, the Diamond Match Co. You would say that the chemistry of matches was a very small thing, nevertheless they employ 10 re-

search chemists in the chemistry of matches. They have what they call a supervising chemist who travels around from one laboratory to another, one factory to another, and so this man can bring to bear upon the problems of the Diamond Match Co. the ability and resources of the individual men scattered throughout the country. That is not an unusual thing in the organization of laboratories, of smelting companies, mining companies, factories, and so on. If they can so organize, it seemed a perfectly natural thing to me that the Government laboratories should organize so that the men, as I stated before, in the different ports could be a help to each other in handling the individual questions that come up in any particular port. Of course, in order to accomplish that it is evident that some sort of an organization must be effected; some sort of a clearing house. In a manner we work these things out in a small way ourselves. If questions come up pertaining to ores or metals, I send samples down to Mr. Curtis, of Kansas City, and it is rather gratifying to me to be able to shift the work on to Mr. Curtis, and also gratifying to me to have that question answered in a way that is satisfactory. Likewise a great many of our troubles are "dumped" on New York. I think that is not an uncommon practice. It is entirely likely that the other port laboratories have men especially qualified on metals, or on drugs, or on any one of the thousand things that come up in the customs laboratories. If I knew their ability, it would be of help to me, just as the New York and Kansas City laboratories are. Of course, I avail myself of the resources of the Bureau of Standards, and that has been of great benefit to the Chicago laboratory. If it were possible to have a clearing house so that the information and ability represented in the different ports would be available for each individual port, it would be a good thing. That is what led to the asking of that question. I am very glad it is the first question on the list. I think it is through this that the rest of the things will be solved. Whatever things have been suggested—that we have a manual of official methods; that we have a supervising chemist; that we have this or that—I believe that in order to get any of these things you first must organize as a unit and act as a unit and then the ports will be available for aiding one another. Just how that is to be brought about is a matter of detail, but personally I am very much of the opinion that it should be carried out, and I would like, of course, to hear the opinions of the other members of the different ports. I fully believe this is a question that ought to be settled before other questions are taken up. The rest of them are dependent upon it.

Mr. PICKRELL. I agree with Mr. Hynes. This question is one of the most important to be discussed at this conference. I think the port of New York has had an opportunity to come in contact with the work of the other laboratories more than any other in the service through the C. V. R. system. At various times we have had discussions with Boston, Philadelphia, Chicago, and other cities through samples sent through the C. V. R. department. Oftentimes the same kind of merchandise imported at the port of New York is imported at several other ports. We know that through the C. V. R.—I recall specifically a case at Philadelphia, a case of cresylic acid. If we had a system or had a clearing house or a central bureau by means of which whenever merchandise coming to the different ports was

analyzed, and a copy of that analysis of the merchandise was put at the disposal of the laboratories of the other ports within a certain period, a week or two weeks, there would then be a tendency to have some harmonious cooperation; and also there should be a means by which samples may be distributed to the various ports. There may be a case where merchandise is received for the first time and probably never will be received again, and maybe another port has more special qualifications and experience in that particular line of merchandise than the receiving port. Consequently an expression of opinion for the benefit and experience of that port would be of great value to the port receiving the merchandise. We have just had a case now upon which we have spent two or three weeks, a case we would like very much to send to the various laboratories for an expression of opinion. The merchandise is called Ho-Madye yeast flour. It came from Detroit through the C. V. R., and we spent a long time on it. I think the primary thing is cooperation; of having a system whereby all the experience and the work of one laboratory may be given to another laboratory or explained to another laboratory; where instead of laboratories being separate and distinct units they would be correlated. We are all working for the Customs Service. We all should be willing to give the other laboratories the benefit of our experience, and by such a system we will all receive the greatest benefits.

Mr. WEST. Last week a chemist asked me for information about polishing sand. The true polishing sand is used as an abrasive, but San Francisco imports enormous quantities of ground calcite for polishing rice. The price varies according to the degree of fineness. This chemist tried the usual tests, and not being able to identify the material asked if I could help him. Two years ago, in Alaska, there was an eruption of a volcano, and for a distance of several hundred miles a fine white dust was distributed over the country. A Japanese merchant had an idea that he could make some money out of this sand, and shipped some to San Francisco. Chemical tests showed that it was an ordinary silicate, but microscopic examination revealed all the characteristics of pumice stone, and it was returned as ground pumice. It was this same lava dust that was puzzling the chemist.

We are getting enormous quantities of merchandise invoiced as chicle. The Mexicans gather numerous gums and ship them to San Francisco as chicle. They are not shipped to the chewing-gum factories. They contain about 28 per cent of rubber.

I am sure that information concerning these materials would be welcomed by all laboratory chiefs and I heartily agree with Mr. Hynes, we should have a central bureau.

Mr. McSORLEY. I think it is particularly desirable that a central bureau be established, from a time-saving standpoint. We often get samples of complicated compounds at Philadelphia which require maybe a week or a week and a half to analyze. Now, if we could indicate the analysis we have made on a substance of that sort to all the other laboratories it would save them the trouble, if they got a similar compound, of repeating the work we have done. It might save them a week's time.

Mr. HOWELL. Mr. Chairman, I only want to register my acquiescence in what has been said by previous speakers. I feel sure that the idea of a central bureau is one which everyone will admit is of great value. It is desirable to establish some kind of a central

bureau, because information to customs laboratories to be valuable must be of a specific character and not the usual routine information furnished to the appraiser at the various ports. Only a central bureau can collect such information. It is practicable because a central bureau must be maintained if the work of the customs laboratories is to be unified.

Mr. CURTIS. Instead of a central bureau would the needs of the department be just as well satisfied if, on the examination by the different chemists or different laboratories, a report be made to each and every one of the different laboratories stating that there was received through the port of so-and-so a sample marked in such a manner, which was found to contain such and such ingredients? I believe the port of New York laboratory has a semiofficial list of methods, and that they are contemplating getting up a new one. Reference could be made to this by the port which had sent this card to the various laboratories that such and such a method should be used. This card would be placed in an indexed file under a proper heading; in event of a similar sample being received at one of the other ports reference could be made to that. That would obviate the necessity for the establishment of a central bureau. We all know that the Customs Service is in need of funds. The revenue from imports has fallen off materially in comparison with past years, and the establishment of any division or office which would necessitate increased expense would in a measure be a burden on the Government. I believe that in the event of the question of a new method arising the chemist originating this idea could write to the chief of the other laboratories for the chief's opinion, and on receipt of his opinion it could be boiled down to the consensus of opinion of the different laboratories, at which time notice of that opinion could be sent to each and every one of the laboratories. This, as I said, would eliminate the establishment of a central bureau or clearing house, which is covered by question 5.

Mr. WEST. My idea embraces a little larger scope than mere information for chemists of the Treasury Department. At present I believe we are all furnishing the information required under Schedule E of the Department of Commerce, and I think we all know how valuable these tables will be to us. I think they will be of value all over the country.

The Department of Agriculture publishes a series of cards describing the latest methods of analyses, and they are sent regularly to the different Department of Agriculture laboratories. I spoke to the chief of the laboratory in San Francisco and he has very kindly let me copy these methods. I think that similar outlines of methods should be at our disposal. I have no typewriter. There is one typewriter in the appraiser's department. Personally I would throw up my hands in horror if I had to send copy to all of the laboratories, as Mr. Curtis suggests. It would be almost impossible. If I sent one rough draft to a central bureau they could get it out in manifold typewritten sheets and send it to everybody. They could have their own indexing system there, and I think the source of information would be an elegant one. I have always envied the chemists in the Department of Agriculture their having an official bulletin, containing selected methods and also their official definitions. A central

bureau would be the means of giving us similar information. It would be practically impossible for us to send it out ourselves.

Mr. CURTIS. That merely bears out my contention that the establishment of a central bureau or clearing house would necessitate the establishment of a separate and distinct branch of the service, which would mean probably a chief chemist, translators, and a number of clerks. It would lead to the establishment of a research laboratory—investigators and chemists. It must be borne in mind, I believe, that economy is one of the essentials at the present time. At the same time results can be arrived at without the necessity of the expenditure of money.

Mr. PICKRELL. There is no question but that a central bureau of the Customs Service would be of great benefit. The question as to whether the benefits derived would be sufficient to offset the cost of the proposition is for the department to decide. The question for us to discuss is the necessity of it, and I think there is no doubt but that there is a necessity for it and that it would be of great benefit. Every laboratory in the Customs Service would be benefited thereby. At present one laboratory does not know what another is doing. We do not know the particular lines of merchandise that are analyzed and we do not know the experience they have had along different lines. With a central bureau with a cooperative scheme, we will know, and then we will be able to benefit by it. We will be working as a unit. At present we are independent units. We do not know what the other laboratories are doing; the character of the work they are doing; and there are many things with a central bureau that we could get, and we could standardize our methods; standardize the apparatus; we can standardize the procedure; the manner of reporting samples; have everything systematized.

Mr. HYNES. Regarding the suggestion that this laboratory, if established, might eventually resolve itself into a research laboratory, I think it would be a good thing; an excellent thing for the laboratories and an excellent thing for the service. Usually in the customs laboratories the chemist is about the only scientific or semiscientific man around the building, and in Chicago, at any rate—and I think it is true in the other ports—all manner of questions come to the laboratory. The other day an examiner came in and wanted to know whether the yew tree was an evergreen or not. I did not ask him to send in a sample to have it analyzed, but he had a very real question and a question he must answer. It had to be answered by some one, and I knew of no reason why the laboratory should not exert itself to answer the question. Fortunately, in that particular instance, I had access to Dr. Millspaugh, curator of botany, of the Field Museum, and he very promptly told me whether it was or was not an evergreen—I have forgotten just now which. It is immaterial. However, had I not had the services of this learned gentleman I do not know whether I would have been able to answer the man's question. I think it would be quite proper to send a question like that to the central bureau and let the man in charge of that bureau "get busy." Questions come in and samples are analyzed, and I know how it has worked out in the case of the C. V. R. We don't always sit down and send out samples with the life history on them. Sometimes the pressure is too high. I am a little afraid—I am speaking for the Chicago

laboratory—if we were to make out reports on everything that comes in and send them to the various ports, I am very much afraid one or the other ports would not get all of them, where, if it is possible to send a rough draft to the central bureau and have it distributed from there, all the ports would receive it. You might want to ask a question. There may be already on file the very information you want. Somebody else has already answered your question. They could also keep track of decisions bearing on these particular things, so that while you might get the same information by each port acting independently and sending it to the others, it would facilitate matters very much if it could be handled through a central office.

Mr. BATES. In this connection I would like to say a word or two. I do not think there are any of us here who as scientific men have spent the greater part of their lives in some form of scientific work, do not realize that it would be an ideal condition if we could have a central laboratory to which questions of every degree and character could be submitted at the desire of the chiefs of the individual laboratories. However, at this stage of our organization it would seem to me that we would be going a little too far to put ourselves on record as asking the Treasury Department to establish a laboratory such as we would like to have and such as we have been discussing at the present time. We logically could expect such a thing eventually, but our laboratories are peculiar as compared with many other chemical laboratories—the laboratories of the Department of Agriculture and of the mint and assay service and other branches of the governmental departments—in that we have not specialized lines of work. On the contrary, we are apt to have put up to us every question which arises in the ordinary pursuits of civilized life; and to require one laboratory, even a central laboratory, to cover all these subjects, so far as the analytical work is concerned, would be a monumental undertaking. My hope at the present time is that we could establish some sort of a clearing house through which a record of the laboratories could be kept, and through which they would receive regularly reports of unusual work, and through which also they would receive immediately any particularly new information which should develop, for instance, at the port of New York or the port of San Francisco, and thereby prevent duplication of work. If we can suggest to the department how this can be done, it would seem to me that a tremendous good would be accomplished, not only for the department in the saving of time and expense, but for the building up of the individual laboratories themselves. It is, of course, one thing to suggest what we would like to have and it is another thing for the department to be able to give it to us. The Department of Agriculture has of necessity to maintain a very large chemical laboratory in Washington. It had it there before the pure-food law was passed or before they had any outside laboratories. When the Bureau of Chemistry of the Department of Agriculture was organized there was no other place in the Government service in which it was practicable to place chemical work, and that bureau has grown to very large dimensions, partly because of the fact that work was shoved in on it from all branches of the Government service. When the pure-food laboratories were established that was merely additional matter. It is a different procedure to have the individual laboratories established first and then to follow up with a large central laboratory, which, as

several of you have pointed out, would necessarily be a research laboratory. Personally I would like very much to be able to show the department that we can obtain coordination and obtain an inter-working scheme between the port laboratories without asking the department to go to the trouble and expense of establishing a central laboratory at the present time. I think that in our discussions of the questions which we have before us we should bear constantly in mind the importance of considering those things which are practicable at the present time. I would like to hear any other discussion. This is a very important question, and I feel we should give it all the time necessary.

Mr. COBURN. I wish to say that I believe in this plan for the establishing of a central bureau through which information may be distributed to the various ports. Several of the members mentioned C. V. R. cards. Now, in addition to my work as chemist, I am also an examiner, and I can testify to the great value and assistance which that bureau has been to me in the classification and valuation of goods, and I think the establishment of a bureau of the kind proposed under question 1 would be of great value along the lines of merchandise that come to us for examination.

Mr. PICKRELL. There is no doubt but that the establishment of a bureau for the distribution of information to the several laboratories would be a great step in advance and would be of great benefit. There is no doubt but that after that has been established the necessity will be apparent of having a central laboratory. The C. V. R. department has increased the work of our laboratory tremendously; that is, of a miscellaneous character. We get a variety of samples that we never got previously. We have one or two men who as time permits and the exigency of the occasion warrants go into research work on various subjects. We have found it absolutely necessary to have a research department in the laboratory here in New York, and there is no doubt in my mind of the necessity of it in order to get the greatest benefit possible. We should have some central bureau, some central clearing house to which we can apply. We have at various times applied to the different trade laboratories. We have gone to Columbia University. We have sent samples to Washington and have asked the department to send them to the Bureau of Chemistry; Bureau of Standards. By sending samples to Washington it usually takes two months to get a return. The examiner wants to pass the merchandise. There is no doubt but that we should have a central bureau; no doubt but that we would receive great benefit in having it. I think that will eventually show the necessity and the need of having a central laboratory.

Mr. CURTIS. I am not against the establishment of a central bureau, but I can see from that it would be simply a step to the establishment of a research laboratory. That is not among the questions to be discussed. This question, No. 1, is merely preliminary to that, to the establishment of a central laboratory. I do not know how this information should be distributed, if not through a central laboratory, except in the manner I have suggested, each laboratory sending a copy to the different laboratories, unless it might be sent to this C. V. R. bureau, a single copy and they have it duplicated. Are they in a position to do that work? I do not know. I am not conversant with their work. It might be sent to the department and have it published

in the Treasury Decisions, which would meet all requirements; all that is necessary, but I am not against the establishment of a central bureau only in so far as it might be a central laboratory which is not under discussion at the present time. Mr. Pickrell says an enormous amount of research work is being performed in his laboratory. I doubt very much if the other laboratories are benefiting by that research work at the present time. If a copy of that research work were sent to the other laboratories they would be in position to pass upon importations which might come to their port as well as to the port of New York. A research laboratory probably would have to be established either in New York or Washington, and it would mean the expenditure of an enormous amount of money.

Mr. WEST. I would like to read the question asked and get an interpretation of it:

Is it advisable or practicable to establish a sort of central bureau through which information may be distributed to the port laboratories?

I would like to know whether it is to be answered by yes or no?

Mr. BATES. In this connection, I would like to state that I believe it is customary in conferences of this kind to hold informal discussions such as we are now having on this question, and, in general, to let the matter rest there in order to bring out the sense of the conference. In a few instances other official conferences of the Government have made specific recommendations to the department. I think that perhaps we will feel like making one or two recommendations to the department in a formal manner before this conference is ended, but this question which has been discussed by a number of the ports, as I interpret it, it is not necessary at the present time to make a recommendation regarding it but merely to bring out, as I have stated, informal discussion. It is not like we have had a number of previous conferences in which the members have had an opportunity to express their views, and I would hold to the belief at the present time, or rather at the present stage of our proceedings that we refrain from making any specific recommendations until a number of other questions that have a direct relation to this question and have a bearing on it come up for discussion. I might add that it has long been my desire from coming in contact with the various laboratories to impress upon the department the necessity for giving at least the chief of each laboratory sufficient time and leisure to do such research work as the exigencies of the service would demand. Personally I feel it should be the right of every chief of laboratory to have time available to do a certain amount of research work which should be published. It is essential to his growth and ability and he should not be held entirely to the performance of routine matters, but so far I have refrained from urging upon the department the necessity for doing this to the point where it might mean the employment of additional help in the laboratories, as you can necessarily see that it would, but in addition to a central clearing house or bureau I believe that just as needful is it that every laboratory, the chief at least, and possibly one other man, should have time available to devote to certain scientific questions, particularly laboratory research work, which he would not only like to do but which the good of the service demands should be done, and I want to put myself on record very strongly in that respect, and I think it is a thing that we can eventually bring about. I do not feel

like asking any man to take a position in which he can do nothing but routine work as a chief of laboratory. He is entitled to more than that at the present time. I would be glad to hear any other remarks, if there are any other, on this important question.

Mr. McSORLEY. I think, in regard to that first question, that anything that is done should be done on a small scale at first and then the research part of it, the further development, should come in time. The elaborate system of the Department of Agriculture has only been developed after a number of years, and so I think it would be better for us to establish our bureau on a small scale at first, and then as we gain experience to gradually increase its scope as the requirements demand.

Mr. HOWELL. Mr. Chairman, I agree with Mr. McSorley thoroughly. It seems to me that the proposition as it stands now is that it is most important that our laboratories be furnished with information and methods of procedure. Information to any laboratory should be furnished to all, and if there is not some sort of a central bureau, some kind of an office force, if it is only one or two men with clerical assistance under the supervision of a technical man, if there is not some such force we can not get this information. It ought to be possible for all of us to have the information which any of the various laboratories have. I think that it would be very practicable to have a central bureau for the collection and transmission of specific information to the various laboratories.

Mr. HYNES. What I had in mind when I propounded that question was simply a clearing house. I did not have in mind the building up of a research laboratory with a corps of chemists, but I had in mind a stenographer, card index, letter file, and facilities for distribution of information sent in from the various laboratories. It is simply for the distribution of information that is available, or to bring it together so that it is available. Undoubtedly there will be found some chemist in some other laboratory particularly qualified to carry out that research work, and we will benefit by his knowledge.

Mr. CURTIS. In connection with the establishment of a central bureau I respectfully suggest that, in so far as the port of New York has a research laboratory or a laboratory in which they are devoting a certain amount of time to that work, and in so far as the majority of miscellaneous imports come through the port of New York, that the chief chemist at New York be empowered to receive results of investigations, memoranda of miscellaneous importations, and of unusual work from the other laboratories, together with methods now employed by them in the examination of such importations as come through their ports. With this assistance each and every one of the other ports could be in receipt of his findings and of the findings of the other ports, which in a measure would be a preliminary step toward the permanent establishment of a central bureau. That is my suggestion.

Mr. HYNES. I am not quite sure but that it would be, from the standpoint of the department, presumptuous on our part to recommend that any particular bureau, or any particular man, or any particular port be designated as the central bureau. I think we should confine ourselves to the recommendation that such a bureau be established. The appointing power would necessarily lie in the

hands of the department. Let them, from the view they have of the entire service, be the judges of just how this bureau should be established. We should be content to recommend the establishment of this bureau without necessarily designating how it should be established or where.

Mr. CURTIS. As long as the port of New York is doing preliminary work on this question it would seem to me that it would be a proper thing to increase efficiency by getting the cooperation of the other laboratories. If Chicago, Philadelphia, or Baltimore received the various and assorted importations that New York receives, they, too, would be fitted, probably better than New York, to do this research work, but as New York has already established a semiresearch laboratory I think a recommendation that the attention of the department be called to that fact, and let the research work be continued here, the result of investigations or analyses of the other ports to be sent to the port of New York laboratory for distribution to the other ports, it might obviate the necessity of establishing another office with a supervising chemist. It would not necessarily increase the duties of the chemist in charge here at the port of New York other than being a clearing house for information. This information could be supplied to him and he, through his clerical staff, could distribute it to the other ports. That is essentially what I wish to convey to the members. It would not necessarily increase the expense of the department, and, in fact, from that standpoint, it would be well looked at by the department. Of course, if it were to be found prior to our next conference that it is not a desirable way, then the question of the establishment of a central bureau, the appointment of a supervising chemist, the establishment of an independent research laboratory could be taken up, but it would seem we have a beginning. I was about to say that Mr. Pickrell, or the laboratory in New York, has been selfish in not distributing this information, but Mr. West and other laboratories have received the information from Mr. Pickrell. I did not know that, because I have never been in position to require information from New York on account of the fact that Kansas City is peculiarly situated. We are specialists in certain branches of importations, and it might not be a proper thing for me to discuss this central bureau, because I am not as vitally interested as the members of the other ports, yet I feel that giving it a preliminary trial through that which we now have would be the proper thing to do.

Mr. MCSORLEY. I would like to say on this question that I agree with Mr. Hynes that, in our recommendation to the department as to this central bureau, I do not think there should be any particular place or particular name designated in the recommendation. Let the department decide as to where they wish to establish the central bureau. My own personal opinion is that each port should stand on an equality with every other port, and that the central bureau should be established at Washington.

Mr. BATES. I would like to bring out as fully as possible everybody's views on this question.

Mr. SIMONS. The third and fourth questions are related to this first question, and I will be glad to answer those when requested. I am thoroughly in sympathy with the idea of the establishment of the

proposed bureau. I do not think there has been sufficient discussion as to the plan of organization. I think perhaps it could be safely left to the department, but it leaves us a little in doubt as to when the department may take it up or what sort of action may be taken without a recommendation from the chemists here.

Mr. BATES. In this connection I would call attention to the remark I made a few minutes ago that in the appraisers', collectors', and special agents' conferences on nearly every question, various views were presented. If the conference were to put itself on record as making a specific recommendation on each important point that came up, the department would be swamped with recommendations. Because of that fact the procedure has always been in other conferences, and I feel that we should guide ourselves as far as possible by previous conferences of a somewhat similar character that have been held by the department, that the best method for the great majority of subjects under discussion is to bring out an informal discussion. As long as these proceedings are to be printed the matter will be before the officials of the department for their perusal. On one or two exceedingly important subjects we could very properly, before the conference adjourns, make specific recommendations which would have more consideration than would be the case if we attempted to make recommendations all through the proceedings. For instance, in the last appraisers' conference they put themselves on record on one thing. A specific recommendation was made to the department on the necessity and importance of placing the assistant appraisers under civil service. Now, that recommendation obtained very much added force on account of the fact that it was almost the only thing that was directly placed in the form of a recommendation. However, that is merely my personal view in the matter and we are all here on an absolute equality with an equal voice in the proceedings. Whatever is the desire of the conference in this respect will be done. We have used up a considerable amount of time on this one question. Since we have about 50 questions before us, perhaps we had better pass to the second question, unless some one especially desires to make additional remarks.

Mr. WEST. There seems to be in our country to-day a wave of enthusiasm about efficiency. When I came here my idea was that particularly, and I expected to find that the conference was for efficiency, but there seems to be injected economy. Personally I regard those two words as synonymous. I think that wherever "efficiency" is used, the corollary is "economy."

Mr. BATES. I might state that a perusal of the questions which we have before us will show that there are other questions involved in this one than merely the dissemination of information to the laboratories through this central bureau.

Question 2. Would it be advisable to obtain authority from the department to apply to some library or technical bureau for information when the exigency and importance of the occasion warrants? (New York.)

Mr. PICKRELL. The reason why I suggested that question was that we have found in the port of New York that it has been necessary many times to consult all the literature, both in bound form and periodicals, on certain lines of work. We have found in our laboratory that we are limited, and we have had to go to various other

laboratories, to the Chemists' Club, to the library of the Engineering Societies, library of Columbia University, in order to go through the entire literature to find out everything published on a certain line of work. I certainly think the department ought to grant us the privilege at different times to go to some library and have them give us the information, because our own libraries are limited. There is a library bureau connected with the Engineering Societies; there is a library bureau in Columbia University. I know that if we had the privilege and authority to go to those different bureaus and state our needs, our wants, and have them go through all the literature and get us everything from the very beginning down to recent times, I certainly feel it would be a great advantage and would probably be of great assistance in making the proper reports. It is absolutely necessary at times that we go through all the literature that we have in our own library and what is published, and I think we should have authority to go to those different library bureaus.

Mr. CURTIS. Has this authority ever been denied by the department?

Mr. PICKRELL. It has not been asked for.

Mr. CURTIS. Is it essential that the Secretary be asked?

Mr. PICKRELL. My idea was that a recommendation of the conference be made that the purchasing agent of the various ports give us the authority.

Mr. CURTIS. Would that necessitate any expenditure of money?

Mr. PICKRELL. Certainly it would.

Mr. HOWELL. Mr. Chairman, I think it would be advisable whenever necessary to apply to some technical bureau for information. However, has not the appraiser already authority to use any means in his power to obtain information relative to the proper classification of merchandise? It does not seem inconsistent that chiefs should obtain information relative to their work from any source as long as no official information is divulged. Frequently in the course of business the services of experts have been required and have been paid for. It seems to me that already there is authority vested in the appraiser to obtain such information.

Mr. PICKRELL. Without getting authority from the department for the expenditure of the money?

Mr. HOWELL. Yes, sir. I know of occasions where the valuation of merchandise was in question and the services of experts in that particular line were required and paid for by the appraiser's department. I have been told by the clerks in the appraiser's department that the appraiser has authority to obtain such information.

Mr. CURTIS. This question of spending money will probably be discussed under question 31. When I proposed that question I had in mind the expenditure of money for incidentals and repairs, and naturally those would be emergency expenses, and, of course, that will be discussed under No. 31. But I see no reason why a recommendation should not be made that authority be granted—blanket authority—to cover all cases similar to this for the expenditure of money up to a certain amount. I think that will be discussed perhaps under 31.

Mr. BATES. In this connection I would say that I agree most heartily with what has been said on this question. At present a question of law is involved upon which I do not like to express an opinion.

I am not sure just what is the answer regarding the authority vested directly in the appraisers by the department to spend money for information of this character. The fact that it has been discussed here will cause the matter to be given consideration by the department. I shall personally make it my business to call attention to it. Mr. Pickrell and I have discussed this subject before, and I intend to get the situation upon this subject cleared up and communicate with the chiefs of the laboratories regarding it. I would specifically call your attention to the Library of Congress in this connection. Recently we have had bibliographies compiled on certain subjects. The Library of Congress has an appropriation for that purpose by which certain of its employees can be set aside for work of that character, but the demands upon the Library of Congress are so much beyond its appropriation that it has been a difficult matter to get through bibliographies upon anything that the department would like to have. I think this will call the department's attention to the importance of having available all possible sources of information. We would be only too glad at any time when information of this character is desired to do everything that we can, irrespective of any action of the conference, to obtain information which is available in Washington for the chiefs of laboratories. I know that each one of you would be only too glad to do the same for any of the ports. Is there any further discussion on this subject?

Mr. WEST. Several times I have had occasion to refer to different bureaus. I have at times secured information from the Bureau of Forestry, and also I had to apply to the Bureau of Mines for information on coal. I would like to submit that about 15 years ago I was in Singapore and the then chemist at San Francisco wrote to me asking me to get the specific gravity of pineapple juice. At that time the Chinese were exporting enormous quantities of canned pineapples and they claimed it was canned in its own juice or canned in water, and that there had been no sugar added, but for the drawback purposes and other purposes it became necessary to discover whether this was true. I took the specific gravity and sent it to the chief of the San Francisco laboratory. I think that we should receive assistance on the part of consuls in procuring authentic samples of raw materials.

Mr. CURTIS. That question will be discussed under section 19, "should standard samples of materials be issued to the different laboratories." That will be covered by that question.

Mr. WEST. That is, submitting samples from one to the other. This question is for authority to apply to some technical bureau or other source of information. The sample is merely incidental. This is for permission to apply.

Mr. CURTIS. This is for literature.

Mr. PICKRELL. This is for information contained in literature.

Mr. CURTIS. I believe we will facilitate the work of the conference by applying ourselves to the section under consideration and not to another section which will come up for discussion later on. This section, No. 2, as I understood Mr. Pickrell, the framer of it, to state, was for the purpose of obtaining authority to secure information. If that necessitates the expending of money, I believe that it will be covered by section 31. If it does not require the expenditure of

money, I do not think the department will require the asking of authority to get this information.

Mr. MCSORLEY. We, at Philadelphia, very often have to go to the various libraries for information, but as they are all in the vicinity of the appraiser's stores no authority is required, because we do not spend any money. I think Mr. Pickrell's idea is a splendid one.

Mr. BATES. I am not quite clear in my own mind as to the sense of the conference in regard to these recommendations. I personally feel that it would be sufficient to merely state, as has been done, the individual member's views in the record of the proceedings, and I would like to point out particularly the inadvisability of attempting to make a recommendation on all these questions. Every question involves an important point. Perhaps we can make a résumé of certain things upon which we wish to make specific recommendations. I am afraid we will lose the force of our recommendations if we attempt to make a recommendation on each question. The importance of the point involved in question 2 has been brought out here sufficiently to call the department's attention to it.

Mr. MCSORLEY. May I say one word? In regard to recommendations, I believe it would be a good thing when the conference is ended to make a few general recommendations to the department. I think they will be given far more consideration than if we were to make a recommendation on every question.

Mr. CURTIS. There are a number of questions embodied under one heading.

Mr. HOWELL. I would suggest that we keep notes as we go along as to what we consider the most important points. At the end of the conference we can act on them.

Mr. BATES. I think that is an excellent suggestion. If the conference desires to make a recommendation on each question to the department, there is no reason why we should not do so. I think a number of you have expressed in the discussion the idea that we will take up certain specific things about which we will discuss the advisability of making a recommendation, and make as few as possible; that we should eliminate suggestions or recommendations on each individual question. These questions are of much importance and involve not only questions of administration but they also involve changes in procedure. It seems to me that we will have at least 50 recommendations when we get through if we proceed in that way. I shall ask the conference to vote as to what shall be our procedure—whether we shall vote not to make recommendations until in the last discussion of the conference, and then make specific recommendations to the department.

Mr. MCSORLEY. I move that we withhold the recommendations until the end of the conference.

(Motion seconded and carried.)

Question 3. If a central bureau is established, should original or unusual works which may have been done in the laboratory of one port be submitted to the several ports for their information and criticism? (Baltimore.)

Mr. SIMONS. One of the principal duties of the proposed central bureau appears to me to be that of receiving reports from those laboratories wherein some original or unusual work may have been done, and distributing as soon as possible copies of such communi-

cations to the other customs laboratories for the information and criticism of those engaged in similar lines of work. When criticism of accuracy, soundness of hypothesis, or conclusions of the author is made by some chemist, it is suggested that such letters be addressed to the central bureau, which, in turn, will send copies to the other ports; the discussion to be continued until the disputed point or points shall be definitely settled, and the central bureau in all such cases to act as the receiving and distributing agent. In cases where only information as to details or explanation of certain features of the paper is sought, simple correspondence with the author is to be recommended. That the distribution of the results of unusual or original work among the several laboratories is highly desirable is shown by the following facts:

- (1) Many unnecessary analyses could be avoided if the nature and composition of a material for examination had already been shown by a report from one of the laboratories.
- (2) For the same reason much time could be saved in searching the literature for descriptions of similar samples.
- (3) Accuracy and uniformity in many investigations would be enhanced.
- (4) Much valuable information could be obtained which otherwise would not be available, the possessor not having the results of his work published.
- (5) Knowledge of the contents of papers prepared for publication could be obtained in advance of their appearance in some one of our journals.

The value of this last feature may be especially well illustrated by referring to two articles, both prepared in the customs laboratory at New York and published within a year in the Journal of Industrial and Engineering Chemistry. The first one, written by G. W. Knight and C. T. Lincoln, was received by the Journal April 30, 1915, and was published October of the same year, an interval of five months. It is entitled "The determination of methyl and ethyl alcohol in spirit varnishes," and is of particular value to customs chemists who would like to have seen it earlier. The second paper, written by G. W. Knight and G. Formanck, was received by the Journal July 1, 1915, and was published January, 1916, an interval of six months. This, entitled "The determination of sucrose in condensed milk," is of decided value, and I am free to admit that a prior knowledge of its contents would have saved me considerable time and have made me feel greater certainty as to the accuracy of my results. These are but two instances, and undoubtedly there are many more. I might add that just now I am awaiting the publication of an article, dealing with the identification of smoking opium, which was accepted for publication about three months since, and which I should have been very glad to have had read and criticized by the customs chemists prior to its appearance in print.

For the reasons set forth above I repeat that I am decidedly in favor of the establishment of a central bureau which will have for one of its duties the collection and distribution of such original or unusual work as may be done in the various customs laboratories.

Mr. HOWELL. It seems to me that the third and fourth questions are very similar, and were the fourth question discussed with the third we would gain a little time by proceeding to that question.

Mr. BATES. I think that is a good suggestion. We will continue the discussions after question 4.

Question 4. Should the original and unusual works referred to in question 3 include—

- (a) Analyses of substances which bear fanciful names and whose composition is not indicated?
- (b) Procedure followed in the examination of a particular sample when original methods of analyses have to be devised?
- (c) Calculation of the amounts of materials used in the manufacture of particular products when arbitrary constants for certain constituents have to be assumed? (Baltimore.)

Mr. SIMONS. In my opinion, the original or unusual work referred to in the previous question should by all means include, among other things, the three subjects mentioned in this question.

(a) The value of information as to the analysis of substances which bear fanciful names and whose composition is not indicated, can readily be seen when we consider the amount of qualitative and quantitative work which could be avoided, and the time, spent in an often fruitless search of the literature, which could be saved were the composition of the material under examination known. A single example is cited to demonstrate this point, viz, the medicinal preparation "sulfothiol," the chemical composition of which, at the time of a somewhat recent importation, had not, to the best of my knowledge, appeared in available literature. Organoleptic and solubility tests of this material at once disclosed its resemblance to ichthylol, but these alone would not establish the fact that the two substances were identical. To show this, the amount of sulphur and ammonia would have to be determined and the absence of other bodies proven, in addition to the above physical tests. On the other hand, had the central bureau been in position to inform the various laboratories of such an analysis, then it would have been only necessary for the chemist receiving it for the first time to have made brief simple tests to have established its identity.

(b) The distribution of information as to the procedure followed in one laboratory when original methods of analysis had to be devised for particular samples should prove of great benefit both to the author and to the recipients; to the former, by reason of criticism or indorsement of his process; to the latter, in that it would furnish a guide for the examination of similar substances, and thereby not only save considerable time and work but also tend to enhance the accuracy and uniformity of many investigations. As illustrating the working out of original methods of analysis, the estimation of commercial chicle in chewing gum may be given as an example. The speaker was unable to find any published method for the determination of the amount of chicle in the presence of other gums and resins and so had to devise one, which at the best gives but little more than approximate results. Assistance might in this case have been obtained from the central bureau.

(c) In calculating the amounts of materials used in the manufacture of particular products, it sometimes happens that arbitrary constants for certain constituents have to be fixed. This may be seen in the case of a vanilla extract submitted to the chemist with the request that the approximate proportions of Tahiti and Bourbon beans used in its manufacture be determined, samples of the beans

themselves used not being available. If the attempt to furnish this information be made, it is seen at once that certain constants, the lead number for instance, for the different beans have to be assumed. So, too, for the resin content of chicle and the sugar content of various fruits, arbitrary figures have to be taken. It is highly important, in the interest of uniformity, therefore, that when such conditions arise the standards used in one laboratory be communicated to the central bureau for distribution among the other laboratories and that such constants either be adopted or others fixed.

In addition to the above "unusual work," the results of any investigation which may have been made of recently published methods of analysis should be sent to the central bureau for distribution. Such a course might prevent unnecessary duplication of work and might lead to the simplification and improvement of some of the methods then being used by other customs chemists. For instance up to a comparatively short time ago the estimation of ethyl alcohol in combination with ethereal or essential oils—pharmaceutical preparations, perfumery, and so forth—was very unsatisfactory. Within a year, however, there have appeared in various journals new methods for this determination; one of these gave very satisfactory results in the laboratory at Baltimore, and I would have been glad to have communicated my findings had there been a central bureau.

Information on all of the foregoing subjects is obviously of decided value and use to the customs chemists, and its distribution by the proposed central bureau is, in my opinion, to be recommended.

Mr. BATES. It is most important that we should have as full a discussion as possible for the guidance of a central bureau in the laying out of plans for communicating information of this character. It is a difficult matter, a very difficult matter, to lay out a course of procedure on all these points. For instance, in this question of communicating information, how much should be communicated? How most expeditiously and at the minimum cost, and in such manner that the essentials will be communicated, and only the essentials? I would like to hear from the ports fully regarding the particular points (a), (b), and (c) under question 4.

Mr. HOWELL. I think that most surely, in the interest of unity of action, original and unusual work should be reported to customs laboratories. These works should include: (a) Analyses of substances with fanciful names, and so forth, also trade names and patent names; (b) modification on standard methods for special reasons to be given; (c) arbitrary factors for calculation of amounts of materials used. This might include establishment of a standard composition for certain classes of merchandise and definition between crude and partially refined products. (d) Local information as to special chemical uses for certain classes of merchandise.

Mr. WEST. Under subject "Analyses of substances which bear fanciful names and whose composition is not indicated." The Chinese and Japanese make a preparation called soy. No doubt you are all familiar with soy. It is made by malting barley or similar cereal and adding to it when fermentation is completed some of the ordinary soy bean. It is then allowed to stand in large jars. In order to arrest fermentation it is heavily charged with salt, and then is strained and boiled and sent in jars, casks, and barrels to manufacturers in the United States, who use it as a body for the ordinary

Worcestershire sauce. A great many years ago soy was provided for by a Treasury decision. Last year we received from Stockholm a large assortment of fruit sirups for use in soda fountains, and among them was one marked "soy." I do not know and can not imagine how the Swedish people ever came to get the name, and I opened it and examined it and I found it was the ordinary soy such as we get from China. The first time I saw soy I thought it was molasses and started to polarize it, but soon discovered that there was something wrong. Upon talking with the Chinese in the neighborhood of the appraisers' building they told me all about it. This bears out the necessity of having a sample of soy. If a lot of soy were to arrive at an inland port I doubt whether they would know how to classify it. That is one of the things which we come across in San Francisco. Another instance relates to some merchandise given a Japanese name and always classified by the examiner as prepared fish in tins which I found to be nothing more than an agar jelly made with water in which fish had been boiled. There was absolutely no fish tissue there.

Mr. PICKRELL. I think there is no doubt but that the greatest benefit to be derived from a central bureau would be these miscellaneous samples that are extraordinary, samples that are only received once in a great while, or when you receive a sample once and never again; and there is no doubt that all the information that is obtained on inspection of that sample, such as invoice designation, such as value, and also all the work that is done upon the sample, any methods necessary to be devised when the analysis of that sample is made, those methods should be submitted; all that information should be transmitted to the central bureau, and there is no doubt but that the greatest quantity of information transmitted through the central bureau would be analyses and information upon miscellaneous samples. I know the work of the laboratory at this port has increased more in respect to miscellaneous samples than in any other branch. We receive a good deal more under the present tariff than under the act of 1909. We receive some samples once and never get them again. We never know when we make an analysis what is going to happen to that report. It might be wanted before the Board of General Appraisers. We never know what will be the outcome. We want all the information we can get pertaining to that sample. I can recall one specific instance. We had a sample under the designation of "sirup" and it turned out to be blown cottonseed oil, and we spent about three weeks on it and made an unlimited number of different tests. It had the designation of "sirup," which absolutely did not apply to the merchandise. We have all kinds of miscellaneous samples, and no doubt all the laboratories have the same. All information pertaining to them should be transmitted for the benefit of the other laboratories.

Mr. CURTIS. The Bureau of Standards and the Bureau of Animal Industry of the Department of Agriculture issue weekly a bulletin of information to the service. It is a very small pamphlet, and I think if bulletins such as these could be issued by the Customs Division for the information of chemists and examiners and appraisers, it would be of invaluable service to the divisions. This pamphlet could contain memoranda of unusual importations being

received at the various ports, with a history of their origin, disposition, importer, and so forth, such as, I believe, the Treasury Decisions show in the case of olive oil—the chemical analysis and anything unusual. This publication, I believe, is distributed weekly by these other departments, and if this could be distributed by the Customs Division, in a measure it would answer the needs or requirements of question 4, although both questions 3 and 4 depend more or less upon the establishment of a central bureau, according to question 1. Pending that establishment, the information could be distributed through this channel.

Mr. BATES. Is there any further discussion on this question?

Mr. COBURN. From my experience I have found that articles under fanciful names require considerably more time to analyze or get information regarding them. If the work once done were reported and sent out through a central bureau, it would save a great deal of time to the chemists at the various ports. It is quite important that it be done.

Mr. McSORLEY. Very often we get samples in the laboratory in Philadelphia and make an analysis of them, and then the examiner sends the same sample to New York to the C. V. R. department. It is sent to the laboratory here (New York) and a further analysis made, which is a duplication of our work. Now, if handled through a central bureau New York would have knowledge of what we had done on that sample originally, and it would not be necessary to have another analysis made. It would save time in getting the report back to Philadelphia to the examiner. and would reduce duplication to a minimum.

Mr. PICKRELL. I think about two years ago, possibly three years ago, the appraiser at this port asked the different ports if they would not send with C. V. R. samples which had been analyzed a copy of the analysis, because we found that it would expedite our work in the laboratory here. We have in many, many instances received that information, and it has been of great value and assistance to us. I think Mr. McSorley's suggestion is a good one, and it should be continued, and I think in every instance it should be put on the C. V. R. card.

Question 5. What form of report for routine work should be made by chiefs of laboratories to a clearing house? (Boston.)

Mr. COBURN. I wish to say that this question was prepared by Mr. Parker, and I had no knowledge of it until I received a copy of these questions. At that time he was on leave of absence, and I have been unable to get in communication with him. He uses the words "clearing house." As I understand it, I think that is covered by the designation of central bureau which we have already discussed. The question whether it would be advisable to report all routine work and the form for reporting any work of importance, it seems to me, should be left to the central bureau after its organization. I think it would be well to leave it in that way unless the conference desires to discuss it further.

Mr. WEST. In looking over that question there seemed no doubt about it. The only thing I see there which would require any discussion is as to what form of classification should be made, whether in accordance with the tariff, in accordance with the grouping of

materials under Schedule A, or according to chemical divisions, drugs and chemicals, fats and oils, colors, and so forth. The first five paragraphs of the tariff embrace a great many things. It would be well for us to make some provision for that, as to what form that classification should be.

Mr. HOWELL. I think that the question refers chiefly—in fact, specifically—to routine work. The Department of Agriculture food laboratories make a written report to their central bureau, and that report is made monthly. It seems to me that a monthly report of routine work, such as number and character of samples tested should be made by chiefs to a central bureau. Any further information, such as detailed analyses, etc., could be obtained by request from the customs laboratories by referring to laboratory number.

Mr. BATES. That is a very succinct and clear statement. My understanding of this question was that it referred particularly to, say, a monthly report as to what the procedure of the laboratory had been during that month. As chief of a laboratory I would feel if I were making a report that I should have the option of not only making a report of routine analyses by number and designation, but should feel at liberty to report in detail any other work which I thought might be of interest and importance to the central bureau. Necessarily a central bureau would have to depend upon the chiefs of laboratories for rather wide discretion in that matter, although it would call for additional information where it might be desirable.

Mr. HOWELL. I would submit to the conference a sheet similar to the one used in the Department of Agriculture laboratories. There is a blank space on the back for any statement of special investigations not otherwise covered by the reports.

Mr. CURTIS. I make a daily report to the deputy collector of customs in charge at Kansas City on the amount of samples reported; the number of samples received weekly. I make a similar report of the number of samples received and the daily average, and that goes to the deputy collector in charge, and a copy to the collector of customs at St. Louis under whose collection district we work. Semi-annually and annually a similar report is made of the number of samples received, the ports from which these samples were received and the amount of work done. This does not include individually so many zinc or so many lead determinations. They are bulked in one report, showing the number of samples reported for the month or for the six months or the year. These are the reports which are turned in to my immediate chief. I would like to state on this subject that I am working a little different from the other laboratories represented in this conference. I am not under the appraiser. I am under the direct instruction of the special deputy collector at Kansas City and in turn the collector at St. Louis. The reason for that, I assume, is that I not only work for that collection district but for every collection district in the country outside of San Francisco and New York on that special line of work. If these reports are desired, I will turn them in.

Mr. BATES. I would suggest that any information of that kind will be of considerable value later on.

Mr. WEST. I have no blank forms now for reporting anything except the monthly report of gold and silver, lead and copper, and if there is such a form, I would like to know it. On January 1, 1914,

I made a report of the total number of samples of everything which had been examined during that year and also the special methods which we used in examining them, and since then I have received no information at all as to whether these reports are going to be continued or whether a form is to be gotten up. At that time I reported several original methods perfected in the laboratory, and they were sent in with the report. Mr. Simons mentioned work on opium. One of the methods reported was a method for the rapid determination of morphine in opium which we use. Do any of you chemists know of any other forms?

Mr. PICKRELL. We have a regular report sheet for use in reporting samples of imported merchandise. We have a regular sheet for reporting analyses of exported merchandise. We have a regular form for reporting on samples of textiles for bone-dry weight. Then, in making our report as to the amount of work done, number of samples received, number of samples on hand, we make out a weekly report on a special form; make out a monthly report on a special form. We make out an annual report on a special form. My idea of this question 5 is that reports should contain sufficient information so that the central bureau will know the quantity and know all work that is being done in the laboratories for any special length of time. Make a report each month stating the number of samples received, the character of the samples, from where obtained, and the length of time these samples were on hand before reported, the number of samples reported, and also any additional information in the way of remarks.

Mr. MCSORLEY. At Philadelphia we make a report weekly and annually to the appraiser of the port of the number of miscellaneous samples and the number of sugar samples received in the laboratory. Unless the report is very full, I can not see that it is of much value, because one miscellaneous sample might take a week or two to analyze and another take only ten minutes. The number of samples tested does not amount to anything; it is how difficult they are that counts.

Mr. BATES. In connection with this question I would like to urge that any forms which any of you may have brought with you or to which you can specifically refer should be filed, because in these matters, this being our first conference, we are all more or less groping in the dark. The information will be of great value later on for the benefit of any committee or the central bureau, if established, to guide and assist in such work as the conference may lay out.

Question 6. How frequently should reports of routine work be made to a clearing house? (San Francisco.)

Mr. WEST. My idea was an annual report embracing everything, and, as I stated on a previous question, the only doubt was whether that should be according to the tariff or the usual division of chemistry. The report of January 1, 1914, was the only one ever made in the laboratory. I suggest that an annual report be made.

Mr. HOWELL. This question refers to a condition in the event of a central bureau being established, and if such a central bureau were established, it seems to me that would necessitate regular monthly reports, at least, in order that such bureau might be fully acquainted with the work being done by the various laboratories. An annual

report would not be frequent enough. On the other hand, I do not think that any special advantage is to be gained by having reports more often than monthly. The Department of Agriculture has such a system in vogue and their reports are made monthly.

Question 7. What form of report for original work should be made by chiefs of laboratories to a clearing house? (Philadelphia.)

Mr. MCSORLEY. Mr. Chairman, by that question I took it to mean the form of report we should make on samples of new and unusual character; those bearing fanciful names, etc. I have prepared here a form of tentative report which, I think, contains enough information. I would like to read what I have on this report and then submit it to the conference. When an original sample comes to the laboratory a form of this sort should be filled out and sent to the central bureau, which would copy or transcribe it and send it to each of the various ports. The several ports would keep these records on file and if they got any sample that was similar to the one we had analyzed, the work already done on it would save the port a lot of trouble and give them an idea of what our results were and what we had found.

Mr. PICKRELL. Do you not think it would be advisable to incorporate in that report reference to the method used in analysis?

Mr. MCSORLEY. I would leave that to the discretion of the laboratory chief. Each chemist in charge would be instructed to give full information.

Mr. PICKRELL. I think a report on original work like this should be as complete as possible.

Mr. WEST. I think, Mr. Chairman, it would be a good idea if there was a line on there for the signature of the analyst as well as the chief. It traces it back to its original source in case of protest, or other court proceedings.

Mr. MCSORLEY. We always keep those records in our own laboratory. A great many analyses are made by two chemists, part by one and part by another. I do not myself see why the name of the analyst should go on it. The analyst signs the report which, if necessary, goes to the Board of General Appraisers, but on a report to a clearing house I think it is unnecessary. If the conference would rather have it, I have no objection.

Mr. SIMONS. I think it might be well to know his name simply for informal correspondence with him as to details of his procedure.

Mr. MCSORLEY. I think all correspondence should be between the chemists in charge.

Mr. SIMONS. This would be really very informal. It would not be for the official record.

Mr. BATES. Necessarily in any line of scientific work in a particular laboratory it is essential that you have a chief of laboratory. As a matter of fact, for all official procedure such as would occur in the transmission of reports of original work and correspondence regarding the work the only plan that I have ever seen work out satisfactorily is through the chief of laboratory. Otherwise your organization becomes nil. I might add in that connection that from a rather wide experience in dealing with reports of this character I have found that the nature of the report varies very greatly, depending on the work involved and particularly the character of the work.

Details are very essential in certain problems and in other problems it is sufficient to indicate the procedure, particularly if we have an official laboratory manual in which the procedure is indicated. In certain stages the report can be very much abridged. Is there any other discussion on this question?

Mr. HOWELL. I might say that I agree with the chairman that the particular form in which the work is to be reported is rather a difficult thing to define. If a central bureau is established as a real clearing house for work along that line, and if we have research or original work to do, it might be reported by giving the need for such work, including a report as to the progress of same so as to receive cooperation along similar lines at other ports. Ultimately there should be a final and detailed report and the conclusions reached.

Mr. BATES. The work of a clearing house would be very much abridged if the report were made in such shape that it could be transmitted to the other laboratories without very much overhauling. The particular thing of value in questions of this character, it seems to me, is to bring out ideas along those lines in order that the individual members of the conference can get the benefit of them. We all need the experience of each of the members and only by a free expression of opinion can we obtain that. If there are no other remarks we will proceed to question 8.

Question 8. How frequently should reports of original work be made to a clearing house? (New York.)

Mr. PICKRELL. I think a report should be made to the central bureau as soon as the work is completed. That information should be transmitted to the other laboratories just as soon as that information is available, and that time is upon the completion of the work.

Mr. BATES. The question involved there is whether it would be advisable in the course of rather an extended investigation to make a report for the purpose of discussion or possible assistance or additional information during the progress of the investigation.

Mr. PICKRELL. I think the proper time to ask for information is before starting in; get all the experience and all the information that you can from the various laboratories; get that in the beginning, and then when you get through make a detailed report.

Mr. BATES. Is there any further discussion?

Mr. HOWELL. It seems to me that at no stated intervals should reports of original work be made other than to report progress to the central bureau so that duplication of work is not performed.

Mr. SIMONS. I think Mr. Pickrell is quite right. There should be a preliminary report or a preliminary announcement made of a proposed investigation to the central bureau for distribution. Then the other ports could immediately reply, stating whether they could help the port originating the investigation.

Mr. BATES. That is a very good suggestion, it seems to me.

Question 9. Should the position of supervisor of customs laboratories be created? (Philadelphia.)

Mr. McSORLEY. It seems to me that for cooperative work and to obtain a general increase in efficiency, our laboratories should be organized into some such system as that prevailing in the Bureau of Chemistry, Department of Agriculture; that there should be appointed a supervising chemist or supervisor of laboratories who

would act in a general supervisory capacity in all matters pertaining to the laboratories, his position being similar in many respects to that of the chief chemist of the above bureau. Practically all business firms maintaining several laboratories have a chief chemist, who has general control of the laboratories and the chemical work thereof, and who is consulted by the heads of the organization in matters relating to the chemical end of the business. Such a man would be in a position to give the department first-hand information concerning the work of our laboratories; he would head the proposed clearing house; would visit the port laboratories for consultation with the chiefs on matters of analysis, equipment, and so forth; act as referee in cases of dispute, and if requested would furnish the department with information of a scientific nature when such is desired in tariff administration. At the present time it seems that if the department wants any information regarding a chemical subject they go outside the Customs Division to get it. Now, if we had a head chemist, one of his duties would be to furnish information of that sort to the department on difficult questions and also act as arbiter in disputes between the different laboratories. He could, in my opinion, also assist the department in drawback work. It seems to me that ours being a special class of work, the man who would have charge of it, if he is to have any real authority over the laboratories, should be a chemist; he should have the confidence of the department, and his word should be final.

Mr. HOWELL. In my opinion the position of a supervisor of customs laboratories is greatly needed. There should be a chief of all laboratories who can adequately judge our needs and aims, and who has the chemical knowledge to appreciate our difficulties. No organization can be unified without a head, and our work being of a character distinct from the ordinary services performed by the other members of our department requires a special supervision.

Mr. CURTIS. Question 9 designates a title of supervisor of customs laboratories. No mention is made in that question that he shall be or must be a chemist. From the remarks of Mr. McSorley it would seem that it was essential that he be a chemist. That is understood?

Mr. BATES. I should think so.

Mr. CURTIS. It was not mentioned here, simply a supervisor of customs laboratories. In the case of a supervisor of customs laboratories you get back to question 1. I think, in all probability, with the supervision of the central bureau of information collected by that bureau for distribution by it, that a research laboratory must follow. It is absolutely necessary that a research laboratory be ultimately established in the customs service if this central bureau idea is adopted. That, of course, will come under question 10. On the subject of question 9 it would necessitate the appointment of a man, presumably one already in the service, to the position of supervising chemist. It would necessitate his having a proper clerical staff and an enormous amount for traveling expenses. I do not know whether the work or service rendered would be commensurate with the amount expended in creating that office. As I stated in reference to question 1, the preliminary part of a research laboratory and the work attached to it might be supplied to the department from the New York laboratory; the result of this work might be supplied to

the different laboratories without the appointment of a supervising chemist. It would obviate the necessity of creating a new position, which, in all probability, would be filled by preferment and not by civil-service examination, in which case it would be subject to change of administration. I think a supervising chemist would really be superfluous at the present time. I am not against the establishment of a central bureau, but for the time being I think the information which we all have in our laboratories should be intercommunicated. That, in itself, would be a beginning. Let us try it out and see how it works. A future conference could recommend the position of supervising chemist.

TUESDAY, March 7, 1916.

Mr. CURTIS. I have heard the phrase "C. V. R." used a number of times. I want a little information about "C. V. R." What is meant by the term "C. V. R."—comparative valuation reports?

Mr. HYNES. Comparative value report bureau. I think I can make that clear.

Mr. CURTIS. This might be irrelevant.

Mr. HYNES. Roughly, the purpose of the bureau is this: It is a sort of a clearing house for merchandise, primarily for comparing the rates and values of merchandise as passed at the different ports and for the purpose of procuring uniformity in rates and values. Samples and reports of merchandise are submitted to this comparative rate and value bureau by the different ports. Information is also sent out on changes in value, and also rates.

Mr. CURTIS. Is the composition of the different materials dealt with? I have in mind probably one of our other questions is this. Of course, when it comes up for final discussion of this conference it may be that a suggestion might be made that this C. V. R. bureau take hold of the central bureau of the laboratories as part of their jurisdiction. It might be possible. I don't know their workings or their facilities, but it might be within the range of possibilities to have them cooperate with the laboratories in so far as collecting and dispensing this information is concerned. Now, that, of course, remains to be taken up at the close of this conference. When we take up the recommendations to be made to the Secretary of the Treasury that may be presented, and just at the present time I want this information as to what the C. V. R. represents.

Mr. PICKRELL. Mr. Chairman, probably I can explain. My knowledge here at this port as to the C. V. R. department is practically as Mr. Hynes has stated, a clearing house for the appraisement of merchandise at the various ports in the country. When an appraiser or an examiner of another port is in doubt regarding the classification or the valuation of a particular importation he takes a sample and sends it in to the C. V. R. department at the port of New York with a C. V. R. card, giving all the information he has pertaining to the merchandise, its entry number, its value, the consignee, the consignor, and the proposed rate of duty, proposed value as given on the invoice, and then states his request. The C. V. R. department then turns that over to the examiner in the building here who handles that particular line of merchandise, and he makes his return, and I think it is customary, if he disagrees, to give the basis of the disagreement.

Now, as far as the chemical laboratory here is concerned with the C. V. R. department, we receive many samples of merchandise that are sent up by the examiners which come from the C. V. R. department, in cases where the examiner thinks that analysis is necessary before he can make the proper return on the sample, and in those cases the composition of the merchandise is considered.

Mr. CURTIS. Having heard that expression used so frequently here I came to the conclusion that there was an intimate connection between the C. V. R. bureau and the chemical laboratories of the country, and it dawned on me that possibly our primary central bureau might be established, utilizing the facilities which now exist in this C. V. R. bureau. Where is it located—here?

Mr. BATES. Here in New York.

Mr. CURTIS. They have every facility for handling and communicating and getting information of that kind, and it would only require one communication from the different laboratories of the country to them and the transmission of the sample with the necessary data, its chemical composition, and so forth; they in turn could distribute that information; they have facilities, I presume, for doing that to the other ports, and in that way a central bureau might be established. Now, I do not mean a permanent central bureau, but the beginning of a central bureau connected with the customs laboratories, which would lead ultimately to this supervisor of customs laboratories and a research laboratory—that was my point in making this inquiry as to what the C. V. R. really meant.

Mr. HOWELL. Mr. Chairman, we have only covered nine questions so far, and we have real work to do yet. I feel that if we do not expedite matters we are not going to get through on time. I suggest that we confine ourselves to the specific question in each case and make our remarks as short as possible in order to get through.

Mr. BATES. I think that matters such as Mr. Curtis has just brought up might very properly come up for discussion later on. The matter is not under discussion under questions 9 and 10. I would suggest, then, if discussion on question 9 is not completed that if anyone has anything further to say in connection with question 9 it can be brought up with question 10.

Question 10. In a general way what should be the official duties of a supervisor of customs laboratories? (New York.)

Mr. COBURN. I do not know what the other members of the conference have done in relation to answering these questions, but personally I have written out short answers to each question. It seems to me that we will have to speed up this conference in order to get through, and I think it would be a good idea for each one who has formulated an answer to a question to read his answer.

Mr. BATES. It would be an excellent idea if you have any such matter prepared.

Mr. COBURN. I will read the answer to No. 10. Of course, in some cases the answers may be rather wide of the mark, but it would give an idea of what each one thinks. To visit the laboratories at the different ports as frequently as thought necessary; to make suggestions for improvements of apparatus, methods, and so forth; to distribute information as to standard and provisional methods; if so decided, to supervise the preparation of standard reagents and the purchasing of apparatus and chemicals.

Mr. WEST. In regard to question 10, I have in my notes here: First, should be a chemist; should be a civil-service position, located in Washington, with a suitable office and sufficient clerical help; should have control of all cooperative work, tabulating results, and so forth; to receive reports of work done, also inventories; from the reports of laboratories should compile an annual report to the Secretary of the Treasury and publish same; should control the compilation of a manual; should have a complete library, with facilities to copy or photograph the text of special articles to be forwarded to chemists requesting them.

Mr. HOWELL. The position of a supervisor of customs laboratories is greatly needed. There should be a chief of all laboratories who can adequately judge our needs and who has the chemical knowledge to appreciate our difficulties. However, a supervisor of customs laboratories should have his duties clearly defined in order that there be no conflict of authority with the appraiser or other superior officer at port laboratories—possibly the port laboratories might be organized as a separate department under a central bureau, which would be presided over by a supervisor. The administrative details of laboratory work, such as personnel, and so forth, are more or less under the control of the local superior officer and must be as he alone knows of the local and immediate needs. From a chemical point of view the supervisor of customs laboratories could direct our work in much the same way as the Bureau of Standards controls our sugar work at present. He could suggest various lines of work, recommend improvements in methods and personnel, cause us to be furnished with proper supplies, keep us posted as to chemical information we should have in our work, collaborate our results, control the central bureau, in short occupy the same relative position to all the chiefs of customs laboratories as they occupy to their subordinate force.

Mr. PICKRELL. I think there is no doubt but that primarily, in order to accomplish standardization, uniformity and increase the efficiency, we need first a central bureau; second, we need some one in charge of that central bureau, and some one who has the authority, who has the qualifications to manage the central bureau and to bring about uniformity in standardization, and the equipment and other work performed in the various laboratories, and that alone could be handled by a supervising chemist who would periodically visit the various laboratories; who would inspect the character of the work performed therein, and who would look at the equipment, the apparatus, and who would look into the personnel of the various laboratories, and who would make the proper recommendations to the department, and who would act in a very similar capacity to the supervising tea examiner of the tea examiners of the various ports, and I think the various things that have been stated by Mr. Howell might be in accord with my views. I think the primary feature is the question of standardization.

Mr. BATES. I am very glad to see the idea of standardization brought out here as much as it has been, because the one thing that has impressed me in visiting the laboratories throughout the country is the lack of standardization. I am speaking now more particularly of the port laboratories where a general line of laboratory work is

done. The unfortunate thing in the history of our laboratories is that they were created one at a time and in order to meet the temporary exigencies of the service. They were allowed to drift by themselves under the supervision of a local management and our men have been tremendously handicapped as a result.

Mr. HYNES. Mr. Chairman, all through this discussion it has been apparent that we need a central bureau, in charge of a chemist whose functions would in effect be that of a supervising chemist. But you must not lose sight of the fact that under the law each customs district is an entity; that as regards the appraiser's office the appraiser is in supreme control of the chemist and of all the members of the force, only in so far as he may be subject to the collector of customs, and while I would be the last one to seek to curtail in any way the authority of the supervising chemist, I nevertheless feel that you must preserve the individuality of the chemists at the different ports and that the duties in the main of the supervising chemist would be those of an advising chemist, a man who would advise and suggest, rather than one who would coerce. Now, of course, if there is a chemist in charge of any laboratory who is inefficient, or obstinate, or who refuses to accept advice when it is self-evident that the advice is sound, then, of course, it ought to be within the jurisdiction of the supervising chemist to make appropriate recommendations to the department for the correction of the condition. I have always been impressed with this one provision in the tariff law—that is, that as an appraising officer the individual examiner is absolute; he can appraise, or rather the appraiser of the port can appraise, at any price he likes, and his appraisement is absolutely accepted. It can not be influenced by the department; can not be controlled by the department; his appraisal is final only so far as it is subject to review by the Board of General Appraisers. Now, I believe that in appointing a supervising chemist you must not extinguish the individuality of the men at the different ports, and as I stated before, his duties must be very largely that of advising and cooperating with the individual chemists.

Mr. WEST. I would like to speak about a supervising chemist. Speaking strictly personally, I think that the principal value would be the value of a supervising chemist as a representative of the department. Now, I really have no laboratory. I have some tables and very indifferent apparatus, and all of my equipment is in the control of the custodian's department. I made some blue prints of necessary workbenches, and so forth, and Dr. Parker, who happened to be there, unofficially wrote a letter to the department in 1914 stating my needs, but I have heard no word since. If I could have a supervising chemist go through my laboratory once in a while, he could speak to the proper authorities and see that I obtained proper equipment.

Mr. CURTIS. It seems to be the consensus of opinion that a supervising chemist is one of the requirements, but I favor what Mr. Hynes has said—the individuality of the separate ports must not be lost sight of; and if it is the recommendation of this conference that a supervisor of customs laboratories be appointed, or the position be created, it should be only in an advisory capacity in order not to have the authority of the appraising officer or collector of customs of the port, who has the supervision over the laboratory at the present

time, infringed upon. It would seem best at the beginning that he would only be in an advisory capacity. In reference to the ability or desire of a supervising chemist to better conditions in laboratories, I might say, in reference to the laboratory at Kansas City, that it is the best of its kind in the country. I do not think there is another laboratory connected with the customs service which is in a better position to handle the work that it is called upon to handle. Of course, the location is in a peculiar part of the building, like all laboratories usually are, but I have never had any difficulty in obtaining the necessary apparatus to discharge the work of the laboratory; and I think if Mr. West were to make formal application to the department through the proper channels, without going to the custodian, and let it come under "expense of collecting the revenue," he could get all the necessary apparatus without having to wait for the recommendation of a supervising chemist.

Mr. McSORLEY. In considering the appointment of a supervising chemist, it would appear to me to be advantageous to have such an officer located at headquarters, right in the department at Washington. It seems to me that the men engaged in work of a chemical and scientific nature at the ports are somewhat out of touch with those in authority at Washington, and I think it would be advisable and would be helpful if we had a representative who could and who would impress upon the department the necessity for granting requests, and so forth, that we make. I think that is a very important point, because at the present time, if we make a request or ask for information, it passes through the hands of people who know nothing about our science; who are unsympathetic and who can discount our judgment at will, conditions that are not conducive to efficiency in the conduct of the laboratories.

Mr. COBURN. In regard to obtaining supplies, I want to say that we often have some difficulty in that line. I recollect within the year asking for a book, C. A. Brown's work on sugar. It was refused because it was said that sugar was going on the free list. This is only one instance, but I think that there is considerable trouble at various ports in getting the proper supplies, and I think if that matter was under the charge of a supervising chemist the laboratories would be better supplied with apparatus and books.

Mr. SIMONS. I would like to say that I am thoroughly in favor of the appointment of a supervisor of laboratories, and I think Mr. McSorley's suggestion is very good—that he be located in Washington, right at headquarters.

Question 11. Should an official "manual of methods" for the guidance of customs chemists be prepared and published? (Kansas City.)

Mr. CURTIS. Mr. Chairman, in regard to this paragraph it seems to me a very simple matter to get together such a manual. Personally, we use but two or three methods at the laboratory in Kansas City, which I believe are embodied in an unofficial manual published by Mr. Pickrell at this port. He, I believe, has compiled this unofficial manual of the work performed in his laboratory, but I do not want to say that Mr. Pickrell has been selfish in the distribution of it, because some two years ago he gave me a copy, since which time additional pages have been added to it—I now speak of the first one he compiled—but he neglected to forward or send to the laboratory at

Kansas City these additional pages; consequently, his whole manual is incomplete. I believe the department should compile, or have compiled, the methods as are now used, and improved upon from time to time in a manner such as the Department of Agriculture, Bureau of Chemistry, has done; not only for distribution among other laboratories but as a public document, available to manufacturing and importing chemists. I do not think it would be a very hard matter to compile this manual, but question 12 will deal more fully with how it should be arrived at.

Mr. HYNES. I want to go on record very emphatically as favoring the publication of a manual for the use of customs chemists for several reasons. In the first place, the range of our work is so very great that it is impossible for any one chemist to be an expert in all the lines of work that come before him, and sometimes analyses are presented that make it very difficult for the chemist to know just how to proceed; he may not even know where to look for information; there may be practically nothing published upon the particular sample he is required to analyze. The publication of adopted methods would serve to supply the chemist's needs along that line. The second reason is that analyses of the appraisers' stores are primarily for the purpose of determining classification or valuation—the majority of cases. These analyses are not necessarily the same as one would make if they were in the food laboratory or in a commercial laboratory. In the analysis of, say, chewing gum for drawback, you have to determine the sugar and the chicle, beyond that you do not need to concern yourself what is in it. In the analysis of candies for drawback you have to determine the sucrose, and beyond that you care nothing about the composition of the candies, and so on through the entire line of analyses presented at the appraisers' stores. If we had a method published for the particular analysis desired for the sample presented, it would economize time and effort on the part of the chemist. Another reason is that when we go before the Board of General Appraisers to sustain our classification and valuation based upon analysis, it would be of considerable value to the individual chemist to have back of him the moral support of a standard or uniform method adopted by the chemists doing customs work. That fact, I think, is borne out pretty thoroughly by the experience of the Department of Agriculture. Its official methods are accepted now as a standard. I think the same would obtain if we had official analytical methods.

Mr. PICKRELL. I think there is no doubt but that a great benefit would be derived from having a laboratory manual that would contain the official methods as used throughout the other laboratories in the Customs Service. For instance, Bulletin No. 107, published by the Bureau of Chemistry, we would regard as a standard. And furthermore, to be contained in the manual, all methods for the preparation of standard solutions; also methods for the preparation of test solutions. We have found at the port of New York that it is absolutely essential that we have some kind of a manual containing all the methods in use at this laboratory for the guidance of the different chemists, particularly in the absence of one chemist on vacation or sickness, so that another chemist can take up the work. Two years ago, in February, 1914, we got up our manual; about 100 pages of methods. Since that time we have added a number of new methods; we have made a lot of changes in the other methods we at vari-

ous times used. We found recently that our old manual had so many changes and additions that it was very complex in its nature, and it was absolutely essential that we get out a new edition. We are now in the procedure. We have found that the new edition will be two or three times larger than the old edition, and it is my idea—we are having struck off 50 copies of the manual—when it is completed to send to the appraisers of the various ports that have laboratories a copy of the manual. And also my idea is to contain in this manual the tests for the different chemical reagents that we would apply for the reagents that we purchase. We all know that some so-called analyzed chemicals are not up to the percentages that are given on the labels. We all know that a lot of the chemicals we receive are not adequate, and there should be tests made and applied, just the same as they do in the Bureau of Chemistry. They adopt specifications, and these specifications are given and samples are submitted and those samples reanalyzed, and only the bidders are allowed to bid or to be considered whose chemicals come up to the specifications. I think all of these things should be incorporated in a manual, and just as Mr. Hynes said it would be of great service to the chemist when he goes on the stand to have before him the method he has used and have as a backing the methods that are used in the Customs Service. We also find that these various methods change, and means should be taken so that when these changes are brought about they will be shown in the laboratory manual, and whenever new methods appear in different periodicals, and so forth, means should be taken so that those methods should be given a trial, and it should be found out whether or not they are adequate and come up to the expectations that the author has given in his article. I will be very glad to pass around to the various members of the conference for their perusal a copy of the manual that we have here and also the pages that we have so far struck off of the second edition. I will only be too glad indeed to send to each one of the laboratories a copy of this manual on completion. I expected that we would have it completed by this time, but you all know that this work has to be done at odd times.

Mr. HOWELL. I desire to go on record as agreeing that a manual of methods should be prepared and published. Discordant results are often due to different methods of analysis. There is no valid reason why all customs laboratories should not work under one method on merchandise of the same character. The tendency of all chemical work which is routine is toward the uniform method, such as the work of the A. O. A. C. and the various committees on testing materials of the A. C. S. To accomplish this uniformity a manual must be prepared covering methods of analysis on the samples of merchandise whose analyses are most frequently required in customs laboratories.

Mr. WEST. I would like to go on record as favoring that. I want to bring out that it is not going to be as difficult as we imagine; that all the ports are specializing along certain lines. Now, we in the West get very large quantities of molasses, some from Java, some from Mexico and ports in South America, and a great deal from Honolulu, and unofficially I have talked with the various chemists, and I have seven different methods which are used on different plantations for the determination of sucrose in molasses. In addition, you all know California ships a great deal of canned fruit, and

we have evolved in the laboratory what I think is a very good method for the determination of added sugar for drawback purposes. Before that the packers had standard sizes of cans, to which they claimed to have added a certain number of ounces of sugar. We went through the different factories and saw their methods and also obtained samples of the raw fruit, which were sent to the laboratory for analysis, and we have an average of the sugar content of different fruits canned. Now when we have analyses to make for drawback purposes, we feel that we can come very close to the amount of sugar they have added. I simply mention that to show the availability of the material right at hand.

Mr. BATES. There are quite a number of questions bearing upon this subject, and in preparing the questions it was quite a problem to know just how to take up the questions to bring out all the desired information on the question of a manual, there were so many questions presented by the different ports. I do not know that we can do better than to discuss these questions individually rather than to try to combine them, because, while some of them are interrelated, each one, as far as possible, is an entirety in itself. So I will call the attention of the conference to question 12:

Question 12. What would be the best procedure to inaugurate the preparation of a manual? Should a committee of three be appointed? (New Orleans.)

Mr. HOWELL. Mr. Chairman, confining myself strictly to this question, "What would be the best procedure to inaugurate the preparation of a manual," I will answer the question as follows: The best procedure would be to appoint a committee of three to confer and inaugurate the preparation of such a manual. A larger committee can hardly be serviceable, and three members are adequate to reach the desired result. These members should be chosen with a view to their availability for personal conference from time to time.

Mr. CURTIS. I understand that more or less each laboratory has its own semiofficial manual. Mr. McSorley has just told me that he has his manual; we all know that Mr. Pickrell has his. I think the best method of procedure to inaugurate the preparation of a manual would be the appointment of a committee of three, and to use as a basis these two manuals which are now in existence, semiofficially, and any others which the chiefs of the different laboratories may have and will contribute. From these official methods can be chosen, tried out, and ultimately embodied in one official method.

Mr. HYNES. I do not know whether or not it is better to postpone this until the end of the session, after discussion of the whole thing has taken place.

Mr. BATES. I will call for discussion upon the point raised by Mr. Hynes.

Mr. HOWELL. It seems to me that this committee should be appointed by the chairman. The chairman has had personal knowledge of and contact with all the members of this conference, whereas each member of the conference is meeting each of the other members for the first time. Therefore I think Mr. Bates is in the best position to nominate this committee, and it would seem better that he should be delegated to do this.

Mr. MCSORLEY. I think, Mr. Chairman, it would be far better to have the chairman appoint the committee on methods.

Mr. CURTIS. I favor that, because it was very aptly stated that you have come into close personal touch with all of the members here, while this is the first time we have had the pleasure of meeting our conferees.

Mr. PICKRELL. Mr. Chairman, I think the proper procedure would be that a motion be made that the Chair recommend three to the department. That is all we can do in this matter. All that we are discussing here is tentative, with the approval of the department. We do not know whether the department would authorize the issuance of a manual for the entire Customs Service. For that reason we could not very well appoint three members of this conference to draw up this manual. I think the proper thing to do would be that the Chair name three men in a recommendation to the department to draw up the laboratory manual. The department could then authorize these three men to draw up a manual. I think that at the present time it would be in order to suggest a motion to be adopted that the Chair designate three men, and then when we finish the discussion of the questions incorporate that in the recommendations to the department.

Mr. BATES. Before I call for action on Mr. Pickrell's suggestion I would like to say that it is, in my opinion, a very important suggestion, inasmuch as the preparation of this manual is not going to be any small task, even the first preparation, and is going to involve some expenditure, certainly some traveling expenses on the part of whoever is involved, and necessarily, or at least very advisedly, the members doing this particular work should be located in one vicinity as much as possible. I feel that you will all agree with me upon the importance of that particular thing. While it will be necessary for the department to authorize the preparation of a manual, I have no hesitation in saying that in the manual and its preparation we have the full sympathy and support of the department, although no official action has been taken as yet. I purposely have refrained from asking the department to take any action until we could obtain the sense of the conference upon this very important matter. I have given the matter a great deal of thought, and I have been very much in doubt in my own mind as to how to proceed, and I have used every opportunity to talk it over with the members of the conference from time to time as I have met them; but I would be very pleased to entertain Mr. Pickrell's suggestion in the form of a motion.

Mr. McSORLEY. I move that Mr. Pickrell's suggestion be adopted.

Mr. COBURN. I second the motion.

Mr. BATES. We will now ask Mr. Pickrell to please restate his suggestion.

Mr. PICKRELL. The suggestion is that the Chair designate three members of the conference to constitute a tentative committee, and that it be incorporated in the form of a recommendation at the close of the discussion of the conference to the department. The members so designated by the chairman to compose a committee to prepare this manual. It is my idea that a motion is in order that the Chair designate three members of the conference to constitute this tentative committee.

Mr. BATES. You have all heard Mr. McSorley's motion. What is the pleasure of the conference?

(Motion carried.)

Question 13. If a committee of preparation of a manual is appointed, what should be its procedure? (Philadelphia.)

Mr. McSORLEY. Mr. Chairman, as this is a rather important question, I will read what I have written slowly, so that the members of the conference can make any suggestions they may wish, because I believe the preparation of a manual, to be authoritative or to have any standing whatever, must be made in a very thorough manner. [Reading:]

Assuming a general committee on methods is appointed by this conference through the chairman, this committee should segregate or group the methods submitted by the several ports; should appoint subcommittees consisting of two or more ports, each with a chairman, and assign to these subcommittees individual methods, or groups of methods, for investigation and report. Each port belonging to a subcommittee should thoroughly try out all the methods assigned to it with a view to determining which is the best method for the analysis of the substance under consideration. If necessary, it should correspond with the other ports on the same subcommittee, citing the advantages or disadvantages of particular methods, until an agreement is reached on a method for the material upon which they are working. When in harmony each subcommittee, through its chairman, should then make a full written report and recommendation for an official and a provisional method of analysis for the substance or group of substances upon which they were working to the general committee, which body should, upon the receipt of reports from all the subcommittees, publish the recommended methods in the form of a manual or bulletin. The methods adopted should not be fixed for all time, but should be kept alive by an active committee and continuous additions and improvements as the science develops.

Mr. PICKRELL. I think that is really too complicated a system, and that the same result could be accomplished in a quicker manner. First, the committee to be supplied with all the methods in use in the various laboratories. They from their own knowledge can go over all those methods, and unquestionably there will be a lot of those methods that are standard methods, methods that are given in authoritative books, that are adopted by authoritative bureaus, like the Bureau of Chemistry. These methods can be adopted on their face as official methods. Then take all other methods that are more or less of an original nature, where two or more ports may have different methods, and first submit those methods to the various ports with samples for collaborative work, and have them make a report on their work along with an expression of opinion, and in that way get the proper methods, the best methods, and adopt those as the official methods. But first go over all the methods and pick out the ones which are recognized standard methods, and then adopt through collaborative work other methods. I think Mr. McSorley's idea is a good one—that the methods adopted should not be fixed for all time, but should be kept alive by an active committee and continuous additions and improvements as the science develops.

Mr. HYNES. I have confidence enough in the chairman's ability to select a committee that will be entirely competent to devise ways and means for compiling these methods without our dictating at this time, and without any mature deliberation as to how this committee shall proceed. I believe that the Chair will select or appoint a committee that will be entirely competent, and personally I would not want to attempt to dictate just now as to how they were going to act.

Mr. BATES. I would like to say a word or two regarding this matter. When at the department's instigation we asked for some sort

of a list of the methods which the members had in use at their ports about a year ago it seemed to me that we could throw these methods together in some sort of shape and make a beginning. No conference had been authorized at that time, and when plans for this conference began to mature I purposely delayed taking any further action, so far as I was concerned, in regard to this manual, except to talk it over with the members from time to time. I have this matter very much at heart, because I feel that nothing that we can do will bring us more before the scientific body of the country, nothing that we can do will give us a greater standing among the scientific men of the country, than the preparation of a manual of this character. In fact, so far as the various scientific societies of the country are concerned, they are hardly aware of the purpose of the work of the customs laboratories, figuratively speaking. It will redound greatly to our credit to have an official manual. Because of the fact that it is an official publication of the Secretary of the Treasury it is bound to be recognized and used and quoted outside of our immediate work, and this latter fact must be constantly borne in mind in its preparation. I feel that this is going to be a more far-reaching thing than perhaps any of us realize, and I also feel that it is exceedingly desirous within the next six months, if possible, that we should make a start toward preparing some sort of a manual. If it seems desirable we need include only standard methods, and I believe that we can prepare such a manual to start with in a comparatively short time. I have with me the methods which have been presented to the department by you gentlemen, and perusal of that literature will justify the statement that I am making in that respect. My idea on this matter is that if the conference desires the appointment of a committee, which it has already put itself on record as doing, that we could prepare a manual which we would make no pretense at the beginning is anything like the monumental piece of work which we expect to do eventually. Subsequent editions will involve researches carried on perhaps at the various laboratories, and which will result eventually in perfecting the manual to what we feel that it ought to be. I personally feel that there is no limit that we need stop at in regard to this matter, and it is bound to redound to the great credit, eventually, of every chief of the customs laboratories. I feel that, in view of the department having authorized this conference, we should, in the shortest possible time, prepare some sort of a manual which can be presented to the department as one of the concrete results of this conference. If the conference, however, desires that we should postpone that until we can carry on various investigations, that can easily be done. Personally, I would suggest that we get out a manual—make a beginning—of such methods as we can adopt at a very early date. It will be impossible, on account of our wide separation and isolation, to give every member of the conference a full voice in this preliminary preparation, but it will give us a concrete working basis to be taken up at our next conference. I would be very glad to hear discussion from the members regarding what I have just said.

Mr. West. This committee should be known as the committee on manual and should meet at the close of this conference; should elect a chairman; should agree upon the division of the list of materials

and articles examined into classes, using as a basis of classification either the tariff list according to schedules or, preferably, according to special branches of chemistry, each committeeman representing as a referee a class or certain classes; to adjourn to meet again.

If the information is not procurable at this conference, the chairman should request from the proper authorities that all chiefs of laboratories submit for his information a report enumerating all articles of import the examination or assay of which require uniform methods. This report to include a statement of the usual procedure with such articles, stating the methods used, giving titles of works in which they may be found, and if original methods are used, a copy of the methods, together with any necessary remarks.

The chairman shall segregate the subjects treated in the reports of laboratory chiefs according to classification adopted and forward them to the proper committeemen.

Each committeeman shall arrange all matter forwarded to him and have it assembled in proper shape for presentation at a conference of committeemen. Committeemen to meet with their chairman to discuss material presented, and if there seems to be enough material on hand to form a manual, to recommend, where necessary, that cooperative work arranged and sent out by a central laboratory be performed on samples of known composition following the methods submitted, reports of the work to be received by the committee, the results to be tabulated and presented at a second conference of laboratory chiefs for action.

Mr. HOWELL. The best procedure for such a committee would be to obtain information as to the various classes of merchandise examined by customs laboratories, tests made on same, the number examined yearly, and methods at present employed. From these data could be determined the immediate need for a standard method on certain classes of merchandise. From experience and the existing chemical literature could be selected the best method to employ. This method could be provisionally adopted, tried out by the committee on manual, the results collaborated, and a final recommendation made.

Mr. BATES. Is there any further discussion on it?

Mr. PICKRELL. The various expressions of opinion of the different members of the conference as to the proper procedure in drafting the laboratory manual would be simply information to go on record, and then the committee when it formally meets could adopt its own course of procedure, and I think that all of us to a certain extent are of the same opinion as to the proper procedure. We have a little different views, and I think the committee, after it once gets into session and starts upon its work, will find that it will have to change its procedure at different times to meet the different occasions in regard to the different methods.

Mr. HOWELL. The point that I wanted to emphasize was simply that we could not expect to have an absolutely complete manual at once, but there are certain classes of merchandise which most of the laboratories work on at all times, and standard methods on these were immediately necessary and should be available.

Mr. McSORLEY. In regard to the availability of standard methods, at the present time we do not know which is the standard method.

We have several methods. Take argols, for instance. I guess a great many of us test argols. There may be six or seven methods for argols. Each of those methods is somewhat different; as a matter of fact the literature varies as to which is the best method for determining the percentage of potassium bitartrate in argols. Now, if a subcommittee on argols consisting of three members was appointed, each one of those members would try out all the methods used at the ports for determining potassium bitartrate, adjusting differences by correspondence, until a harmonious opinion was reached as to the most satisfactory method for our use.

Mr. BATES. I would like to emphasize again the importance of our completing some sort of a manual at an early date. I anticipate that innumerable questions are going to arise regarding the methods which should be followed, so that we are going to have to compromise at the beginning on many questions. The important thing, as I see it now, is to get out a manual, or a preliminary manual, if you please, at an early date, because I desire to see it shown as one of the concrete results of this conference to the department. It alone will justify this conference, if nothing else were done, in my opinion. The innumerable questions which will arise can be taken care of later, and the committee, which will necessarily have to ask you to empower it with a very broad latitude as to procedure in this preliminary formation of the manual, can take up at a later date by correspondence with the various members all methods upon which it can not agree.

Mr. HOWELL. Mr. Chairman, along those lines, what would be the objection to this committee compiling this information and having it published in some such form as Mr. Pickrell has there—a tentative manual covering as many methods as they feel they can adopt; have this submitted to the various ports for their use for, say, three months, and then allow the various ports to criticize the manual to the committee? We do not expect to adopt immediately a manual that is perfect in all respects, and it is only by some such method that we can get a manual that can finally be adopted.

Mr. SIMONS. Mr. Chairman, I think the selection of disputed methods could be largely determined by question No. 23, the cooperative distribution of samples. Those samples could be examined, methods given for their examination, and a report made of conclusions reached.

Mr. CURTIS. What facilities has the Bureau of Standards for examining and passing on chemical methods?

Mr. BATES. Why it has most all the facilities I think that obtain in a large institution of that character.

Mr. CURTIS. Would it not be possible to have the cooperation of the Bureau of Standards in revising the methods submitted some months ago to you as a part of the work of this committee of three?

Mr. BATES. In answer to that I would say that latitude should be given the committee in charge of the preparation of the manual to call upon any bureau or laboratory of the Government. There are so many; I know the Bureau of Standards would be very glad in all probability to do anything that it could, and so would the other Government bureaus devoted to specialized lines of work. This is true, that the Government laboratories in Washington are more or

less specializing, and we are in the very difficult position of having to deal with a wider range of subjects than any other physical or chemical laboratory that I know of in the country. In fact, every sort of question is put up to us, involving physics and chemistry, to say nothing of other lines of scientific endeavor; and I feel that the committee should call upon people who are as highly specialized in the different lines as possible. I have no doubt in my own mind that that is the action that the committee would voluntarily desire to take. However, in the preparation of this first manual I do not think that we should go into that to the extent which we will later on. The thing that I want to urge is that we among ourselves as far as possible get out a manual to start with, so that we have a concrete working basis, to which additions can be made.

Mr. CURTIS. But this manual should be as nearly accurate as possible, and therefore it should be within the power of this committee to call upon the Bureau of Standards, or the Department of Agriculture, or private institutions. In one of my questions submitted, which was not adopted because I believe it is embodied in one of the other questions, I asked whether preference should be given to commercial methods used by importers—standard commercial methods used by them. Just to get off the subject, I will say that a question arose some time ago as to the reporting of lead by what is known as the wet method. The El Paso Smelting Works contended that the dry method was the method used by them, but unfortunately for the El Paso Smelting Works, a year or so previous I had written to the chief chemist for his method, and he had transmitted his method to me, which was essentially that as used by us, showing that in the contention of the importer for the levying of duty by the dry method it was not the method used by themselves. I think this committee could get the cooperation of these outsiders, and, as a beginning, why not segregate the methods as submitted, and let them use that as the basis on which to build their manual, submitting them, if not to the different laboratories, to the Department of Agriculture, who, I believe, would cooperate, and to the Bureau of Standards. In this way we would get a more perfect manual at the beginning. This, of course, could be left to the discretion of the committee.

Mr. WEST. Mr. Chairman, I think that all the great things in this world were done by groups of men with absolute unqualified faith in something. I think that it is up to us to put our faith in this committee and let them go ahead and do just as they think best. We should all get together and expedite matters by sending them in as far as possible the methods which we may have in use, and, above all, to put an unbounded faith in their work, and I do think that they may get it out sooner than we think, and, if necessary, it can be changed later.

Mr. HYNES. I want to add my moral support to what Mr. West has said. You have in your possession analytical methods in use from time immemorial. In addition to that, we have the special methods used by the New York laboratory, and I think that any of these methods are fairly accurate, fairly feasible, or else we have occasion to blush for the chemical work of the customs service. Now, then, I think that we are all aiming at the one point, and I think

we will accomplish that by giving the committee whatever liberty it needs, or whatever latitude it needs, to go ahead and compile the methods from the submitted information or any other information that they may see fit to use, and get something started; give us speed, in other words; let us get started; let us get our manual out, and let us get it as soon as possible; and we can iron out the wrinkles or irregularities in it later on.

Mr. HOWELL. Mr. Chairman, I offer a motion that it is the sense of this conference that the procedure in the preparation of this manual be left to the committee of three.

(Motion seconded and carried.)

Question 14. Should a manual of methods contain both provisional and official methods? (New York.)

Mr. BATES. Before I call upon New York to open the discussion on this question it would seem that we should bear in mind the differentiation between whether we are discussing a final form of manual or a manual which the committee will first present to the members of the conference for their approval.

Mr. PICKRELL. Mr. Chairman, I did not present question 14 in that form, but my idea of incorporating that as part of the question that I submitted was that it would probably be as it was in Bulletin No. 107—official and provisional methods. In some cases we can have a method that we will consider to be official and other methods which we consider to be provisional. The method that we use in the laboratory for the determination of meat in meat preparations is only provisional. We would not care to adopt it as an official method; it is only approximate; we do not know of any method that is absolutely quantitative. I think we can find a great number of that kind of things, and those methods can be put down as provisional methods. I think both questions 14 and 15 should be left to the committee as coming within their jurisdiction.

Mr. CURTIS. That applies also, I would suggest, to 16, 17, and 18.

Mr. HOWELL. Can not we consider some of these questions together, Mr. Chairman?

Mr. BATES. We can pass through those rather hurriedly. Is there any further discussion on question 14?

Mr. HOWELL. This manual should contain both provisional and official methods, as there is always an unforeseen possibility that the official method may be impracticable.

Question 15. To what extent should it be obligatory for Customs chemists to follow the methods given in a manual? (New York.)

Mr. PICKRELL. That would all depend on whether or not the method was an official or provisional method. If it was official, it is practically obligatory on the chemist to use that method, because it would be adopted by the entire Customs Service as the official method and upon the adoption of that the department would understand that that method would be the method that would be used. If it is only provisional, I would consider that that method is then at the option of the chemist as to whether or not he will use that method or some other method, because in stipulating that it is a provisional method it is practically stated that it might be more or less at fault.

Mr. WEST. In tests for identification official methods should be given the preference, then provisional methods, if necessary, sup-

plementing with other tests, but reporting all tests used. For the assessment of duty calculated from assay, official methods only should be used.

Mr. BATES. Is there any other discussion?

Mr. HYNES. Well, I don't think it is necessary for us to bind the conference to the use of the adopted methods. I think it is fair to assume that the methods put out by the committee will be the best available, and I have confidence enough in the sense of the chemists at the various ports to believe that they will use the best methods in their work. If it is not the best method, let him present his findings to the committee and let them change the method.

Mr. HOWELL. The work of a customs laboratory often has a different scope from the work of other laboratories. Sometimes it is imperative that the greatest accuracy be obtained as important legal opinions may be based upon such results; again, it is only necessary to know whether an article does or does not contain a certain compound, and time is wasted by an extended analysis along usual lines. Hence it is desirable that the use of official methods be designated in such cases where accuracy and full results are needed. No manual can be prepared to cover all exigencies but the official methods could be followed in most cases and a note appended when they had been deviated from for any cause.

Mr. COBURN. I think it will be well to have official methods as far as possible for articles which are mentioned in the tariff, where the rate of duty depends on the presence or percentage of some particular substance, such as vinegar, fusel oil, and so forth.

Mr. SIMONS. I think that the customs chemists should regard the official methods just as the pharmaceutical chemists regard the methods of the Pharmacopeia, i. e., as official and as obligatory.

Question 16. How comprehensive should be the first edition of a manual? Recommendation is made that it especially include lead, ores of, bullion, and alloys; argols, potassium compounds, varnishes, spirit, creosote oil, with special reference to the type of flask, amount to be distilled, position of thermometer, etc. (San Francisco.)

Mr. HYNES. I think that has already been covered.

Mr. BATES. It seems to me that question 16 has been pretty thoroughly covered. It was brought up by San Francisco as referring specifically to certain classes of substances. I will ask Mr. West if he has anything to say in regard to that?

Mr. WEST. In addition to that I have made a note—the determination of copper, zinc, antimony, alcohol in various preparations; fats and oils; and zinc dust.

Question 17. What is the best way in which to arrive at a decision as to which methods should be adopted for a manual? (New Orleans.)

Mr. HOWELL. The best methods of analysis for use in the customs laboratories must ultimately be decided upon by their practicability. Their usefulness can only be determined by the experience in using them. This has been the usage in the adoption of the A. O. A. C. methods. Therefore, after the committee on manual has selected the various tentative methods, the customs laboratories should try them out and from the tabulation of these results can be determined which are best for our purposes. This procedure will take a little time as

the work must be done on duplicate samples, but the end to be attained is worth all the time and trouble taken to secure it. This is given with the idea that the manual should be issued immediately in a tentative form and used by the different laboratories with the idea that their criticisms can be given the committee.

Question 18. Should a standard text for making up volumetric and test solutions be adopted? (San Francisco.)

Mr. WEST. I would like to recommend the adoption of a standard reagent for making up volumetric solutions. I use oxalic acid. From it I can get my acid and alkali standards, and also my oxidizing agents; in the laboratory next to me they are using potassium tetroxalate. These things should be decided by the committee, but I would like to suggest that if anything be adopted as a standard enough of it be purchased so as to send a certain amount of it to each laboratory. We have a great deal of trouble in getting the proper class of reagents; sometimes we get Baker's, and sometimes we get Merck's; occasionally we get some from Europe; so they vary. But if a standard were adopted, I think it would be well to buy a sufficient quantity of it and send a sample to each laboratory, and then we would each be using the same reagent.

Mr. CURRIS. In regard to that, I believe that question could be fully covered in our manual. In the preparation of it, the subject of standardizing solutions could be incorporated. I believe the Bureau of Standards sells, or gives, to other departments a pound or a quarter of a pound, of oxalic acid, which is usually considered standard, as a basis for standardizing reagents, and this might be incorporated, or attention called to that fact, in the manual.

Mr. HYNES. I think that if the committee should decide that a particular published method was preferable for standardizing any particular solution they could in the manual easily make reference to that method just as the Bulletin No. 107 makes reference to methods of assay of alkaloids by citing the method in the United States Pharmacopœia. Furthermore, we will shortly have a new pharmacopœia; it has been promised to us for six months or more, but we will probably have it in the next six months, and inasmuch as that is the official method, the official standard for drugs and chemicals adopted by the Department of Agriculture, the methods published therein will have a great deal of weight, and no doubt there will be published therein reference to standardizing solutions. Instead of adopting a particular text for making up volumetric solutions, the committee can easily refer us to the pharmacopœia or any work on chemistry they may see fit for making up the different solutions.

Mr. BATES. In this connection, I would like to say that it has been my idea that the manual should be something more than merely a guidance for the chiefs of our laboratories. That wherever possible there should be printed and incorporated in the body of the manual full directions and details as to procedure. It will make the manual, I believe, a more important thing than it will merely to give a large number of references to other sources of authority. While this may result in making the manual considerably larger than it would otherwise be, I am nevertheless in favor of making it as complete as possible, because it will enhance its value to the outside world.

Question 19. If practicable, should standard samples of materials be issued to the different laboratories? (Kansas City.)

Question 36. To what extent are specimens of known purity and authenticity with legend-bearing source, history, and synonyms desirable? Specimens to include flours and starches; fibers, raw, treated, and in textile; fats and oils; gums and resins; steels, alloys, metals; natural pigments, clays, and earths, minerals, coal-tar colors, dyes, and tanning material. (San Francisco.)

Mr. CURTIS. The question was brought out yesterday by Mr. West in reference to some artificial silk, I believe. It seems rather strange that standard samples have not been distributed heretofore to the laboratories as a comparison, or on which to make an estimation of their composition to check up the work. A number of years ago—I believe it was the American Chemical Society who inaugurated it—a composite sample of zinc ore was sent to a number of chemists throughout the country; it was followed by the Bureau of Standards, I believe, doing the same thing, and as a result a standard sample of zinc ore was made up by the Bureau of Standards and is now to be had from them. This also applies to steels containing different percentages of carbon, etc., and I think it would be a mighty good thing for the laboratories in the Customs Service to obtain any and all samples for comparison that it is possible to obtain. I am strongly in favor of these standards being sent to the different laboratories.

Mr. PICKRELL. The port of New York has found that it is very necessary to have standard samples, especially of organic material, such as tanning extracts, gums, resins, coal-tar dyes and oils, and everything of that nature, for comparative work for identification, and we found it very hard, indeed, to get them. We have been trying to get them from the importers through the examiners, and we recently took up the matter with the Bureau of Standards, textile division, to see if we could get standard samples of vegetable fibers and hairs for comparative work, and they advised us that probably the best place to get these was the Commercial Museum in Philadelphia; and we have also had under consideration, and have taken the matter up with the appraiser, of sending one of the chemists of the laboratory to Washington to visit all of the different bureaus, and on his way to stop off at Philadelphia and visit the museum, and find out if we could get samples or not, and then put in requisitions in order to get them. I think there is no laboratory in the country that needs these samples greater than the customs laboratories. It is almost necessary in analysis of different organic materials that you have the standard, authentic comparative samples. We have a lot of coal-tar dyes, but we are far short of having a complete set of all of the coal-tar dyes that are on the market, or that were on the market previous to the present European war. I think that this is one of the most important things that should be considered by this conference. I believe that every laboratory in the Custom Service should have a complete set of all authentic samples, especially of an organic nature. We should also have samples of an inorganic nature of different things like cryolite, infusorial earth, different kinds of clays, and various paints. We should have standard samples of different kinds of alloys, different kinds of ores, and everything that we can have in cabinet form, and have them in such a form that they can be kept permanently and can be referred to and used at any and all times.

Mr. BATES. This again emphasizes the fact that the chief of a customs laboratory should be not only a chemist; he should be a walking encyclopedia of useful information.

Mr. McSORLEY. We find at Philadelphia that it is very helpful to have standard samples. We have a great number of them, and we are adding to them all the time. The way we get our standard samples is by extracting small amounts of those importations which prove to be characteristic of any material. In regard to Mr. Pickrell's mentioning the Philadelphia Museum, we have had a number of occasions to refer to the Commercial Museum; they have a few samples, but most of them are very old and not of much value. Many of the standard samples should be renewed from time to time, because they are of materials that decompose, decay, or change in some way, but I think that it is especially important to have standard samples. Anyone who has worked in our laboratories, as Mr. Pickrell states, knows the importance of those samples. We have samples of textiles, etc., for microscopical investigations. We have taken characteristic samples; they are not authoritative samples in any way, but are considered standards by ourselves. We have not large amounts of any, but we will be glad to give a part of what we have to anyone who wants them; for instance, artificial silk; we can give Mr. West a quantity of artificial silk.

Mr. BATES. The lack of cooperation between the various laboratories is here again very apparent. For instance, New York and Philadelphia may have on hand relatively large numbers of samples as compared with several other ports, and yet there has been no provision made anywhere for the distribution of these samples to the other ports. I think that we will be able to take care of all those needs eventually.

Mr. CURTIS. I think the misfortune of the lack of cooperation is because it is impossible at times to communicate direct with the chiefs of the different laboratories. It necessitates communications passing through the appraiser.

Mr. WEST. I would like to say that in San Francisco I have a very elaborate lot of samples. I have them all indexed, and of a great many I have a sufficient amount to send some to others, and when the proper time comes you will hear very liberally from San Francisco—some things like Chinese drugs that the other ports do not get often, for instance. There are other things, like explosives, and in order to show the amount of work that is necessary to identify them I will mention some work on a certain explosive which comes through there in a semiliquid form, one of the nitrotoluols. It was necessary to first centrifuge, and then, after freezing to get out all the solid material, to recrystallize. I recrystallized eight times. I am happy to say that it came within a tenth of a degree of the stated melting point, but had I had samples of commercial di and tri nitrotoluol as usually imported I could have obviated a tremendous amount of work. The stuff is new and I had a great deal of trouble with it. That is only one of the things that I have to speak of. I have a list here of sugar, fibers, artificial silk, mercerized goods, both fiber and textile, wool grease, and sod oil. We have an unending lot of trouble with those. Starches and flours I have a great many of, about 90 per cent of the starches and flours imported. I have procured the roots and

tubers and made them up myself. I have authentic samples as well of extracted oils from the seeds and nuts that come from the Orient. Then, in addition, Mr. Curtis spoke about steels and alloys and other materials. These are needs that require authentic samples. In regard to clays, they import a great many clays there, and we have not an authentic sample of Spanish or common clay, and oftentimes we are very much bothered by them. As to minerals, we are blessed with a great many samples. I have had the same trouble with coal-tar colors that Mr. Pickrell spoke of, particularly dyes and lakes, tanning material, chicle, rubber, and rubber-bearing material. Those are the things that stand out prominently as in need of standard samples.

Mr. HYNES. I have exerted myself in getting certain samples of textiles, starches, and other materials. I find that the Bureau of Standards was very, very liberal and very enthusiastic in its cooperation in that respect. I have also found that the museums, particularly our museum in Chicago, has been very anxious, not only willing but anxious, to help in every way that they can in obtaining standard samples, and inasmuch as they have men traveling all over the world all the time obtaining authentic specimens, that they give us a very wide range, and you are always sure of the accuracy of the samples when you get them. I mention that for the information of the other chemists who might want to use the museum in that way. However, the samples, with their arrangement and so on will depend upon the energy and resourcefulness of the particular chemist in charge. Now, our needs in the different laboratories are very much the same; standard samples that will be of service to Mr. West in San Francisco will be of service to me in Chicago, Mr. McSorley in Philadelphia, and so on, and I think that it might be appropriate to incorporate in the manual a chapter devoted to the standard samples, which might include the containers, source of information, and so on. I do not know that that appropriately belongs there, but certainly some provision ought to be made, and for my own part I would be very glad to have some one with experience give me a design for a cabinet; design for the different kinds of containers in which the samples could be kept; design for the labels, and so on; design for a card index. You see I want it complete. I merely put it that way in order to suggest something to the other men that will bring out some ideas. We all recognize the need of these samples, and we want to know the best way to utilize them after we have obtained them.

Mr. HOWELL. I want to put myself on record on this very important matter that it seems practicable and very desirable that standard samples of materials be maintained at customs laboratories. A large part of chemical deductions are made by analogy, and the possession of type samples aids greatly in establishing the identity of unknown materials. The value of the blank test is familiar to us all. It has been my practice to save known and tested samples of merchandise for this very purpose, particularly as a customs laboratory is liable to receive anything which grows or is found or manufactured in the wide world beyond our shores.

Mr. PICKRELL. I think the proper procedure in order that all the laboratories in the customs services can have at their disposal all of these authentic samples, is to have a committee of three appointed, as I consider this a very important proposition, and I think it is go-

ing to take considerable time to get these authentic samples, and every laboratory should be provided with them. As Mr. Hynes said, we need cabinets, we need card indexes, in order that they may be preserved properly and can be properly taken care of and properly reached at the right time. For that reason I make a motion that a committee of three members of the conference be designated by the chairman to later incorporate it in the form of a recommendation to the department.

Mr. SIMONS. I second the motion.

Mr. BATES. It has been moved and seconded that a committee of three be appointed by the Chair to take up the question of standard samples, with the idea of bringing about as complete a set of samples for the use of each individual laboratory as possible, and any other information in regard to the handling thereof.

(Motion carried.)

In this connection I would ask for discussion in order to expedite this matter and bring out all the material available at the earliest possible date. I would ask opinions as to what the sense of the conference would be regarding the asking of each member of the conference after he returns to his home to communicate with the department giving a list of such standard samples as he has on hand which he could supply for the use of other laboratories and also a list of such samples which he has not and which he particularly desires. It seems to me that if this were done it would bring out in a very short time a knowledge of just what samples are available. I myself am more or less in ignorance regarding the resources of the various ports on these samples. What would be the idea of the conference regarding such a procedure?

Mr. WEST. That brings out the necessity of a central bureau. It wouldn't do for us to get them haphazard. By mailing samples to each other repetitions would occur. There must be some head to it in order to get them and to distribute them. The cabinet which I have them in I managed to borrow from another department. It is one of the library styles, 36 inches wide and 36 inches long and 3 inches deep, divided into sections, and, in addition to that, we have the card-index system for them.

Question 20. What standard samples of materials are most needed? (Kansas City.)

Mr. CURTIS. That has been more or less in the mind of everybody here during the discussion of the preceding question.

Question 21. When the classification of chemicals and chemical products is the subject of protest at a particular port should there be a system of exchange of samples with the other ports, with an analysis or statement of the basis of the collector's action? (Boston.)

Mr. COBURN. I think we ought to keep the different ports informed as to the articles that are being protested against, so that each port may have the same classification until the protest is settled. Sometimes we find decisions on articles which do not reveal the character exactly of the articles on which the decision is made. It seems to me that this information could be provided by exchange of samples between the ports, and all the ports would then know what was being done.

Mr. BATES. That is rather an important question, it seems to me. I would like to ask for a full discussion. I do not know to what extent other members of the conference have experienced the same difficulties that Boston mentions. It seems to me that it must have arisen at various times with all of us.

Mr. HYNES. Am I correct in understanding that a particular sample should be sent to another port for the purpose of getting an analysis which would sustain the local port's classification?

Mr. COBURN. That is one of the objects; and also to keep the other ports informed on articles that have been protested before the Board of General Appraisers.

Mr. HYNES. I think that is a very important thing, particularly for the furnishing of additional testimony for your case, provided that it is possible to introduce that as evidence when your case comes to trial. I would suggest that questions 50 and 21 are very closely related.

Mr. BATES. Why not consider question 50 with 21?

(So ordered.)

Question 50. What plan, if any, could be adopted so that analyses or investigations made at one port could be used in protest or reappraisement hearings without the presence of the chemist who made the analysis or investigation? (Chicago.)

Mr. HYNES. I am not quite clear as to what the ruling of the Board of General Appraisers is in regard to reports from other laboratories being submitted in evidence, but I do know this as regards the importer's chemist, that they will not admit a report. They must have the chemist there in person to testify. Now, it is not always practicable to get the chemist. For instance, Mr. Pickrell makes an analysis for a Chicago protest. It is not always possible to get him out there to testify in person, yet his analyses are of vital importance in sustaining our case, so I wondered what could be done to make this information available. The same thing may have been analyzed at some other ports, and if that is available the local chemist would be materially aided.

Mr. BATES. The question arises there of establishing the absolute identity of the materials which were analyzed by the two different laboratories, and it seems to me that you must also give consideration to that point.

Mr. PICKRELL. I think, generally speaking, that the chemist should be put on the stand who made the analysis, because oftentimes there is a lot of information that should be brought out in the hearing of the case that is not written in the report. Take for instance the identification of a sample of oil. He might write on the report "peanut oil," and you have no information there at all why he came to the conclusion that it was peanut oil. He may have said it was cotton-seed oil. There is no information there at all why he came to that conclusion. That would be brought out in the trial. It is generally customary, from our experience before the Board of General Appraisers, that the chemist is always put on the stand when a report is put in evidence. That, of course, depends upon the member of the Board of General Appraisers who is hearing the case. Sometimes they do admit the reports without the chemist, but it is generally the practice for the chemist to be on the stand. I think that is by

far the best practice. If an affidavit could be used in place of having the chemist go on the stand that affidavit should be made just as full as possible, containing all the information, statement of all the facts, and a complete statement of the analysis, making the information a good deal more in detail than is contained in his report.

Mr. HYNES. Referring to the question of the identity of the sample, I think that matter is rather easily covered that if the shipping port identifies the sample with a number and certain marks and the chemist at New York or elsewhere who may make the analysis will report in the proper place provided in the blank that a sample marked so-and-so was analyzed and found to be so-and-so, that the identity would never be questioned, but the question is whether the general appraiser will admit that affidavit as evidence or not. Probably the easiest way to get out of it would be to have some member of the conference confer with the Attorney General on that point. He would probably know whether it could be admitted or not, or what steps would be necessary in order to have it admitted.

Mr. PICKRELL. I think that is a very good suggestion of Mr. Hynes's. I know of a number of occasions when we have had samples submitted by the Board of General Appraisers, or a general appraiser or the Assistant Attorney General's office, arising from hearings in other ports, and I have often wondered how that report was introduced as evidence in the hearing. I think it would be a good thing to get information from the Assistant Attorney General's office as to whether or not this could be done, and, if it is done, what is the proper procedure.

Mr. MCSORLEY. My experience at Philadelphia is that the protestant's will allow the introduction of a chemist's report from another port if the chemical data is not of much importance, but in questions where the identity of the sample is concerned or the chemical data is of prime importance, they require the chemist who made the analysis to be present for cross-examination. We have had several cases in which they have objected strenuously to the introduction of reports from chemists who were not present to undergo examination.

Mr. BATES. When we have an official manual containing an official method covering a particular sample, I think it will expedite or at least assist in getting that evidence before the court. We could then say that this analysis was made according to method so-and-so of the official manual of the Treasury Department. We have met with the same difficulty that Mr. McSorley mentions, and it generally arises from a question on the part of counsel for the defendants as to the character of the methods pursued. Where we have an official method I believe it will go a long way toward eliminating that particular trouble. I would like to hear from some of the others on this question. Mr. Coburn, have you anything to add on this?

Mr. COBURN. It has been my experience that the general appraiser wishes the chemist present to testify in cases before the board, and I do not think that they give much weight to analyses reported. They wish to have the chemist present to question him in regard to the analysis. However, I think that the analysis by another port would perhaps help to sustain the chemist at the port where the

protest arose; that is, if the results were the same it would confirm his analysis.

Mr. PICKRELL. I offer the suggestion that we postpone further consideration of this question until 2 or 3 o'clock, when Mr. Hanson or Mr. Doherty can give us some information in regard to this. I suggest that we postpone the question until then.

Mr. BATES. This is a very important matter, it seems to me, and it is very desirable if we could get some legal advice in regard to this matter while we are all assembled together. It would be of great value to us, and I would authorize Mr. Pickrell to see if he can get some one to come into the conference and discuss this matter with us.

Mr. McSORLEY. There are several questions I would like to ask in regard to that question. Does it contemplate the exchange of all samples against which protests have been registered?

Mr. CUBURN. Only such as are subject to chemical analysis.

Mr. McSORLEY. Even in that case, 60 or 70 per cent of the samples that are protested are abandoned finally. The importer protests as a matter of form. If all ports other than the original port would make a reanalysis of every sample of a chemical nature protested at New York, it would be a monumental undertaking. The same thing would apply to Philadelphia; also to Boston, and so forth.

Mr. BATES. It is perfectly apparent there would have to be some limitation.

Mr. HOWELL. Mr. Chairman, my experience has been that the importer usually requires the presence of the chemist at the hearing. He refuses to take any ex parte evidence. I know I have been frequently called to Houston, Tex., on opium and morphine cases, and they have refused to take a deposition as to the identity and the character of these samples, such as simply verifying the fact that they were morphine or opium, which was the only connection I had in the case, so it seems to be a legal procedure that the presence of the chemist is demanded. It would seem that the record of the analysis should be plain enough for protest or reappraisal hearings for all ordinary cases. Where special information is desired it can always be obtained by a retest or a special analysis. The custom of holding general appraisers' meetings or hearings at stated intervals at the various ports also allows of the presence of the local chemist who could give testimony on a duplicate sample sent him by the original port, if such were necessary.

Question 22. If an exchange of samples of products under protest should be established, what data should accompany said samples? Special card with legend giving full description, value, tentative classification, work already done upon it, result and methods used? (San Francisco.)

Mr. WEST. There are certain things I would like to emphasize, and one is that whenever possible an original sample in an unbroken package be sent. Also a tentative classification. That often gives the chemist a line as to just about where to look for things. I find it of especial benefit if the broker sometimes will give us a tentative classification of some compound that bears a foreign name. This is especially true of oriental goods. A little pencil notation on the invoice oftentimes helps us.

Mr. PICKRELL. There might be a system of exchange of samples whereby only those samples upon which it is apparent that there

might be a different classification as the result of a chemist's report. That probably would be handled through the central bureau and be at the discretion of the one in charge of the central bureau as to whether or not samples would be transmitted to the other laboratories for analysis.

Mr. SIMONS. In connection with this question it strikes me that all the literature bearing on the subject also should be secured.

Mr. BATES. The question of bibliographies is a very important one, and I am surprised it has not come up more often in this conference. Anybody who has looked up the literature on any one of these subjects appreciates what it means to have some one do it for you.

Mr. HYNES. As to the amount of information that should be sent, I can just describe it by what I would like to get if somebody was sending me a sample. I would want to know all he knew about it—the manufacturer, the importer of it, the purpose for which it is to be used, the price of it, and the chemist's opinion as to what it is or as to what paragraph it should come under. Simply sending a sample to another chemist and asking for an analysis is a mighty big request, for it means an absolute analysis. I think in sending a sample they should give all the information possible.

Question 23. Would it be advisable to establish a general cooperative system of exchange of samples for analysis, with the object of securing uniformity of results? (New York.)

Mr. HOWELL. Mr. Chairman, I think it is desirable to establish a general cooperative system for exchange of samples for analysis similar to, but not so elaborate as, that already adopted in the comparative testing of sugar. This system is only part of the general scheme for standardizing and unifying the work of the customs laboratories. It should be adopted after the establishment of a central bureau and the adoption of a manual of methods. By having such a chain of laboratory tests the bad places in our methods and tests could soon be discovered and the work all brought up to a single standard, the advantage being gained by the customs laboratories working on identical samples.

Mr. PICKRELL. That question really comes within the purview of the discussion we have had before on the central bureau. It is a question of exchange of samples between the various laboratories to get uniform returns. If one laboratory gets a sample of merchandise of unusual character, something they have never received before and something that probably requires an original work and a new method will have to be devised, why, it would be of great benefit indeed if that sample could be submitted to the other laboratories throughout the service for a report or an expression of opinion, and at the same time, when all the returns were submitted it would indicate the character of work being performed in the various laboratories. It would show whether or not there was uniformity in methods, and also one laboratory might profit by the experience of another laboratory. One laboratory might receive some Chinese drugs or something of that character. If that sample were submitted to San Francisco, we would profit by Mr. West's experience. So really this question comes within the purview of the central bureau, but it is absolutely essential that there be some kind of a system of exchange of samples between the various laboratories in the Customs Service.

Mr. WEST. In addition to that there is a possibility of trying out original methods on it; sample being submitted they could give specifically the methods to be followed, and then could be determined which method was the better one.

Mr. MC SORLEY. I think that question should be deferred until the manual of methods is prepared, because I surmise the general committee on the manual will have a number of analyses made by the various ports and these analyses will partake of the nature of an exchange of samples. As regards a general exchange of samples between the ports, I do not know whether that is advisable or not. It seems a duplication of work. It would be asking a chemist at one port to continually check up a chemist at another port on special work. I think it would be all right and satisfactory if any port wished to be checked up by another chemist on a particular sample, but to make a continual practice of it I hardly think would be advisable. The Department of Agriculture laboratories have no continual exchange of samples. They do collaborative work on special methods, but there is no regular exchange system as is proposed here.

Mr. SIMONS. I look at that question as referring more especially to the standardization of methods. I answer the next question with that view in mind.

Mr. BATES. I think it would be well to consider question 24 in connection with this.

Question 24. If a general cooperative system of exchange of samples should be established, how frequently should samples be exchanged? (Baltimore.)

Mr. SIMONS. As I said, I answer this in the thought that the question was more especially designed with the idea of standardizing methods. The frequency of the exchange of samples under the proposed general cooperative system should, in my opinion, be contingent on the meetings of the chiefs of customs laboratories. If these conferences are to be continued and are to be held annually, then a yearly distribution of and report on exchange samples and methods would seem to be logical. By this plan samples of known composition and of special importance, together with descriptions of the suggested standard and alternate methods to be used, would be submitted by the chief of each laboratory to the proposed central bureau, which in turn would send a sample of the material and a copy of the designated methods to each of the other laboratories with a request for a report on the same. These reports would be collected by the central bureau, which would then make copies of the results, and send to each of the chiefs one complete set of such work a sufficient time in advance of the conference as to allow a study of the data to be made. At the conference verbal criticisms of the results of the work would then be possible, and this form of discussion seems highly desirable for the adoption of official and provisional methods of analysis. If it be decided not to hold annual meetings of the chiefs of laboratories, then it might be advisable to exchange samples and reports more often—say, semiannually or even quarterly. This greater frequency is recommended simply because of the fact that agreement of the several chiefs or concurrence in recommendations as to proper methods could ordinarily be reached only after an extended time if correspondence rather than personal discussion has to be relied upon for the expression of opinions. The exchange itself of samples might

be varied as the contingency warrants; i. e., the actual time for sending them out be not confined to two or four, as the case may be, definite dates, but be extended to cover cases of particular importance. However, quarterly, or at least semiannual, reports of the work done on certain designated samples should be advised when no verbal discussion is possible. The exchange samples should each bear an inscription stating at what date a report is to be made, and the number of such samples distributed for each period, it is suggested, should be dependent upon the amount of work required for each investigation. This fact should be determined by the central bureau, which should also be empowered to select the particular samples for distribution.

It may be remarked, in conclusion, that the number of these investigations of samples and methods could be doubled or quadrupled if the laboratories were arranged in groups of two or four, respectively. In other words, if instead of sending each exchange sample to each of the eight laboratories there be sent the same sample to but two or four ports, as the case may be. That is, as you see, in line with the procedure followed by the Agricultural chemists in the standardization of their methods.

Mr. PICKRELL. In the installation of any system you have to know at all times how that system is working. We know it is apparent that we should have a research laboratory as a part of the central bureau. Without that research laboratory we ought to have the right to exchange samples with the various ports. The port of New York has an opportunity to come more in contact with the work of the other laboratories and the manner of their reports through the C. V. R. than any other port. I think it unquestionably would be of great benefit if at any time when a port receives a sample of unusual character, something that they have never had before, if that sample were sent to the central bureau, and from that bureau distributed to the various laboratories for an expression of opinion. If that central bureau had a research laboratory, get a report from the research laboratory, and that laboratory should have an opportunity of submitting samples to the various ports. I think this proposition is a good one. The one in charge of that central bureau wants to know what kind of work is performed in the various laboratories, and that is the way he will find it out. I think any one of you gentlemen should have the privilege of calling upon any of the other laboratories for assistance. We want coordination; we want unification; we want the entire laboratories of the customs service to work together and for that we ought to be willing at any time to analyze a sample for one of the other laboratories.

Mr. CURTIS. At the present time, there being no central bureau or research laboratory, I think it should be the proper thing for the chiefs of the individual laboratories to write to another laboratory that was specializing along certain lines for information. I would say for our friend Hynes, of Chicago, that on a number of occasions he has written to the Kansas City laboratory for information in regard to silver plating, gold plating, and more recently regarding the classification of copper matte, and I have always felt ready and willing to cooperate with him and give him all the information within my power, and I think that feeling should predominate

throughout the service. I don't doubt if he had written to the New York laboratory or the San Francisco laboratory, if they were in position to give him that information, that he would have gotten it just as readily as from Kansas City.

Mr. MCSORLEY. I think the opinions expressed by Mr. Pickrell and Mr. Curtis are just about right. When I spoke before I had in mind a continual exchange of samples every week, each port sending out three or four samples requiring difficult analyses, which would take up considerable time and which would not amount to much in the end. As far as getting information from other laboratories is concerned, and asking them to cooperate and augment the work of any particular port, I think that is a fine idea and should be adopted.

Mr. HYNES. In regard to the exchange of samples this exchange, I think, can be handled advantageously through the central bureau in whatever way their judgment dictates. At the beginning, I think, we would be compelled to restrict ourselves to samples on which we require special information rather than samples for collaborative work like samples sent from the Department of Agriculture. Another thing that might be kept in mind is this: If you send out regularly two or three samples a week to the laboratories, it might become quite burdensome to an individual laboratory. In Chicago, and some of the other ports as well, the chemist is an examiner of merchandise and the general factotum around the building. All sorts of questions come to him. Half of my time possibly is taken up with the appraisement and classification of merchandise, which takes me out of the laboratory, so that I find many times the regular routine work of the laboratory coupled with my classification and examining work becomes pretty heavy and leaves me barely enough time to do the absolutely necessary work of the laboratory, and if I were to have one or two samples for exchange work put on as a regular thing I might find it rather burdensome. I think some of the other laboratory chemists are examiners as well. Then, in sending out samples for special information I think it should be kept in mind that certain chemists in certain ports may be specially qualified to handle that line of work. In questions dealing with ores and minerals the Kansas City laboratory is especially qualified to handle those. I naturally send them there. In a great many things the New York laboratory is especially qualified, and I send things here. Some discretion should be used as to where and how these samples are to be sent.

Mr. HOWELL. My understanding of this question is that there should not be any burden put on the laboratories by the exchange of a great number of samples, but simply in connection with the work of the central bureau and after the adoption of the manual of methods, where routine work is being done by the laboratories one sample more or less occasionally would not add greatly to the amount of work. If that identical sample were tested by the four or five laboratories, a better idea would be obtained by the central bureau as to what was going on in the different laboratories. It would simply be a checking system; not so elaborate necessarily as the sugar exchange system, but something along the same lines. Such a system it seems to me would not be a very great burden and would not add greatly to the work of the laboratory. One more sample in routine work doesn't make much difference.

Mr. COBURN. What Mr. Hynes has said about acting as both chemist and examiner is equally applicable in my own case, and I think I would find very little time to do this extra work under the present organization.

Mr. BATES. The experience of the Bureau of Chemistry of the Department of Agriculture and the pure-food laboratories has been rather interesting to me. They have as yet adopted no fixed plan for handling this important question. It is one of the first difficulties that confronts any organization of isolated laboratories. They did not have to deal with the problem until the individual pure-food laboratories were established. Then, as far as I know, they have tried out all sorts of methods, or at least had under consideration in Washington different methods of checking the laboratories and of keeping some adequate check at the Bureau of Chemistry on the sort of returns which the laboratories were making. They have not found that the exchange system of samples is entirely satisfactory. It took up more time than they anticipated and than at first appeared on the surface. As a rule, they wanted to check out on things which were a little bit out of the ordinary and that requires, as you know, considerably more work than merely a perfunctory analysis, of which a great many are being constantly made. It seems to me if the central bureau or clearing house is established that question 23 can only be answered by feeling our way gradually and seeing just how far we can go without it becoming burdensome in establishing an exchange of samples. That an exchange is very desirable I do not think anybody denies, but whether it is practicable and to what extent it is practicable is another question. For my part, I can not see that we can do anything more than let the matter rest there pending the establishment of a central bureau and then gradually feeling out the situation.

Mr. CURTIS. In the Department of Agriculture I believe it is customary to have laboratories specialize along certain lines. Is it the intention of the conference to make each laboratory a general laboratory or would it be inclined to lean toward specializing in certain laboratories? It has always been my impression that the laboratory at Kansas City was a specializing laboratory, we dealing with but two or three classes of material, and a number of ports are sending their work there. As Mr. Hynes says, when he has any question in our particular line, he sends it to Kansas City. I understand that Baltimore is doing a little of our work; San Francisco and New York also; the other ports I doubt. If they have any special class of work, which interferes with their routine work, along the lines of the other laboratories, I think it would be a saving of time and it would be economical to send it to that particular port—the port which has had the experience in examining these particular importations. That, I believe, has been done by Mr. Hynes in several instances, not only sending things to the laboratory in Kansas City, but to New York and San Francisco. Whether it has been done by the others I do not know, but I think it would be a very economical and beneficial proceeding and would give the other ports an opportunity to devote their entire time upon that which they specialize.

Mr. BATES. The customs laboratories are unfortunate in that they have been compelled to be more or less general laboratories. They were established to meet the exigencies of the service and to ex-

pedite the liquidating of invoices with the greatest possible speed in the locality in which the laboratory was located. With that object in view the laboratories have been scattered over the country. The department has always felt, I think, that it would retard the appraising of merchandise to attempt to specialize in one class of work handled in any one laboratory. Kansas City is perhaps the most highly specialized laboratory in the service, but it is so because of its peculiar environment and the class of importations which reach that center. Our seaport laboratories are almost all of necessity general laboratories, as well as the Chicago laboratory, and for my part I see no way of obviating that condition. It makes it doubly difficult to work. I am afraid we are going to have to put up with it. Is there any further discussion? If not, we will pass to the next question.

Question 25. Should standard solutions be exchanged among the port laboratories for purposes of check? (Chicago.)

Mr. HYNES. That question is not of any special significance. I think it would all come in under the manual, but it seems to me it would be a satisfaction for a man to know his standard solutions are all right. So I put in that question to draw out discussion on it, to determine whether or not it would be advisable; to see how the laboratories checked up. I think that would come in under our general plan of standards, which we discussed previously.

Mr. HOWELL. It seems to me that exchange of standard solutions is not desirable if the solutions are the so-called volumetric ones. Uniformity in this matter could be secured by the standard tests adopted in the manual on pure materials furnished by the central bureau.

Question 26. What provision can be suggested for obtaining assistance in testing samples which are entirely outside the domain of chemistry and physics, such as botanical and bacteriological samples, or those requiring an expert in any other branch of science? (Philadelphia.)

Mr. McSORLEY. We often receive in the laboratory at Philadelphia, which is considered a general source of information on all subjects, samples which require the assistance of bacteriologists and botanists or some specialist in another branch of science. To those who are ignorant and do not know the limitations of a chemist it is often supposed that a chemist should be able to answer any question under the sun. We get small bottles of medicinal preparations from the post office. They want to know whether they should be admitted, what they are, and what used for, and various other problems are presented. It is my belief that the chemist should have the power and authority to refuse samples on which he can not give a definite opinion or analysis. We are not supported in that very often. It seems to be the opinion of those in authority that he should be able to do that sort of work, and I would suggest that the appraiser or chemist in charge of each port should be empowered by the department to seek outside assistance in cases requiring a specialist in any other branch of science than chemistry or physics. We on occasions have had difficult mathematical problems to figure, and things of that sort, higher mathematics, which are not within our scope whatever. We do them, but it is a big job. It is outside our line entirely, and I think there should be some way of getting information on those

subjects. There was a question formerly discussed about getting outside information on various subjects applying to laboratories, and so forth. This question might well come in the same category. It is very important to us in Philadelphia, where we get a number of samples of that kind. I do not know whether the other men have had anything of that sort.

Mr. WEST. I have made a note on that. The cooperative exchange of samples should help greatly. Among all the chemists there may be one who has had some botanical training or is a bacteriologist. I have done a little bacteriological work and have been able to handle very nicely any problems relating to it in my work. As to the other branch of science, botany, some of us have had some botany and ought to be able to do a little something on it. Exchange of samples may bring forth a little more information than is generally known.

Mr. MCSORLEY. We do a little something on such samples, but I do not consider our opinion authoritative. Even if we have some knowledge of botany or bacteriology, those are separate sciences, and in order to give an authoritative opinion, as is necessary, and to support that on the witness stand, an expert should be called in.

Mr. CURTIS. I believe the Department of Agriculture and the Bureau of Plant Industry, the Bureau of Animal Industry, or any of these bureaus, would cooperate with the Customs Service in giving opinions on samples submitted to them by the appraising officer. I think they would gladly do that. I know the collector of customs at Kansas City submitted a number of samples to the Department of Agriculture laboratory, and we have always had the cooperation of the chemist in charge. I think we could call on them without any expense to the department and they would cooperate.

Mr. HYNES. As Mr. McSorley has said, the laboratory is supposed to be a source of universal information, and the chemist is considered more of an alchemist than a chemist, and we try to do in Chicago as he tries to do in his home laboratory. We try to answer all questions that come in the laboratory out of sympathy with the examiner. If it is strictly outside the realm of physics or chemistry, I do not believe the chemist should feel any moral obligation to take the examiner's burdens and solve them for him, if outside information must be obtained that is not strictly chemical.

Mr. PICKRELL. I agree with what Mr. McSorley and Mr. Hynes have said in regard to the problems the chemists should be called upon to do, but, nevertheless, the layman does not know where chemistry commences and where it ceases. He expects him to be a botanist and a bacteriologist. I think the laboratories or appraiser should have authority from the department to call upon men who are experienced as botanists or bacteriologists for their opinion. We have had many of those cases in the laboratory upstairs. We have called upon Dr. Rusby, of the college of pharmacy of the Columbia University, who is an expert botanist, for his opinion, and generally we get that information free of charge. I think the laboratories and the appraiser should have authority to get that information if possible. The average person does not know where chemistry begins and where it finishes.

Mr. BATES. The important question is how can we best prevent the burdening of our laboratories with extraneous material, and there is

no doubt but what the laboratories are imposed upon to no unusual degree. The general procedure when a man is in doubt is to go to the laboratory, no matter what the thing may be or what his troubles are. It seems to me it should be within the province of the chemist in charge to refuse, without any fear of criticism, to take up anything which is not within the province of the laboratory.

Mr. McSORLEY. I think it would be a good thing if the department at Washington was impressed with this and would write a letter to the appraisers embodying our views on the subject, these views to be transmitted to the various examiners.

Mr. CORURN. I do not think there is any authority for using the experts in the various departments on unusual articles. I think it ought to be officially given, so that in cases where they are needed the appraiser could call upon them to testify or analyze articles that are unusual or out of the province of chemistry.

Mr. HOWELL. I think I agree with all that has been said before on this subject, but it also seems to me that this question is related to a previous one we discussed, as to whether the appraiser has authority to obtain information relative to the classification of merchandise. If the appraiser has such authority, and my impression is that he has, application to the appraiser for expert help outside of the departments is always admissible. It is also usually the case that professional courtesy will obtain from men in other lines any reasonable amount of advice or information. The chemist is usually the only scientific man in connection with the appraiser's department, and at various ports he must be the only man to whom the appraiser or examiner can apply for that type of information. If he can not give the actual information, he can give advice as to where that information can be obtained.

Mr. BATES. I believe the injustice of the thing often arises in the fact that the examiner is not content with merely asking the chief of laboratory for assistance on a subject which is not pertinent to the laboratory. Take vaccine virus, for instance. He expects the chief of the laboratory to go out and get the information and do his work, and that is an injustice, in my mind, and I do not believe that the laboratory should be called upon or should feel itself in any way obligated to do that particular thing. I believe the department would uphold any position which the chief of laboratory might take in regard to that matter.

Mr. WEST. Suppose that the chemist in charge of the laboratory is the examiner, as he often is. Mr. Hynes and myself are classed as examiners.

Mr. SIMONS. It seems to me, as Mr. Curtis has already suggested, that nine-tenths of these problems could be solved by some bureau connected with the Government. I see no reason at all why the examiner should hesitate to communicate with any one of those bureaus.

Mr. McSORLEY. Very often the examiner does not know where the bureaus are located, their capabilities, etc., and he wants his information in the space of a short time. While the officers and professors of the various universities and colleges in Philadelphia are very nice in giving us all the information we ask for, it seems an imposition to request them repeatedly to give information gratis.

Question 27. Would there be sufficient advantage derived to justify the purchasing of supplies and equipment for all the laboratories in annual installments in one city, such as New York, Philadelphia, Chicago, or Washington, obtaining the largest possible number of bidders? (New York.)

Mr. PICKRELL. The laboratory in this city has had considerable trouble and experience in securing supplies. We have been purchasing our supplies in yearly installments, and the superintendent of supplies of the Customs Service in this city has found it is much cheaper to enter the market occasionally, periodically, annually, or semiannually, than to enter the market every little while, and especially has he found it to be the case that you will get a good many more firms to bid if you go in with a large order than if you go with a small order, and the terms they give are much better. I think on our last annual requisition something like thirty different firms bid on the requisition, and the orders were given out by items. The lowest bidder on each item was given the order. In that way there was a considerable saving to the Government. If we had made out a requisition whenever we needed supplies, which would probably have been every few weeks, every month or so, why there would have been less firms bid on it and probably the entire requisition would have been let out to one bidder and in that way it would have cost the Government more money. My idea in propounding this question was that probably if we made up a budget of the needs of all the laboratories for a period of one year in the form of a requisition and let the superintendent of supplies of the Customs Service at various cities in the country take that requisition and submit it to the various bidders and see what terms they would give us; see if there wouldn't be a saving to the department in the purchasing of supplies and see if the laboratories at the same time wouldn't be able to get better apparatus and get what they needed better than they do now. We found in the last requisition there were some items on which we were not able to get any bidders at all because of the present conditions caused by the European war. On some of those items the superintendent of supplies has asked for bids to be taken two or three times. I think unquestionably there would be a saving to the Government and at the same time the laboratories would stand a better chance of getting what they wanted by making out an annual budget in purchasing those supplies in one city.

Mr. CURTIS. I do not believe you could obtain a bidder who would quote prices on certain articles of apparatus or chemicals to be purchased here in New York and delivered in San Francisco at the same price. They would have to be delivered in one particular spot, either New York, Washington, Philadelphia, or Chicago, by that bidder, because he would not want to burden himself with the additional freight to New Orleans, San Francisco, or Kansas City, and the needs of the different laboratories could hardly be foreseen for a period of one year. Personally I have had great difficulty in obtaining bids upon apparatus. On chemicals it is comparatively easy, because I patronize home industries whenever possible. There were three chemical houses in Kansas City who bid on the last lot of supplies. The list was segregated giving to each individual bidder that portion on which he had bid lowest. That method of ordering supplies for the Kansas City district seems the most practicable. In the case of laboratory glassware we use special kinds of flasks and special kinds

of glasses. At present the Whitall Tatum Co., of Philadelphia, are manufacturing the kind of glass we use at a saving to the department of 50 cents a dozen. On future requisitions purchased from them it will mean a saving of approximately 80 cents a dozen because they already have the mold for this kind of flask. I do not think that any supply house would bid for delivery in more than one city. If they bid, you can rest assured they would add to their bid sufficient to cover expenses. If it were all delivered in one city, it would necessitate repacking and reshipping, with possible chance of breakage. Of course, we all know glassware takes an expert to pack before shipping. I do not think it would be advisable to make a purchase of large quantities of supplies in one city for delivery to other cities.

Mr. PICKRELL. Mr. Hynes asked me to express his opinion upon this question. He stated that he is in favor of purchasing these supplies periodically in one large installment and distributing them to the various laboratories. He suggests that probably we could purchase apparatus, as do the different universities, abroad and bring it in free of duty. That would be a saving in a way. Logically it is not a saving. It is taking money out of one pocket and putting it in another. On the requisition it looks like a saving. I think that it can be done. I think the supplies can be purchased in one city and shipped to the different laboratories. I am quite sure you will get firms who will bid on chemical glassware and chemicals that will bid with the understanding that they will be delivered to certain ports. There is no doubt there will be a saving. If you enter the market periodically with large orders you are going to get better terms than if you enter the market on small orders. There is no doubt the department would rather entertain one large requisition than a number of small ones.

Mr. CURTIS. That may be true of certain apparatus and chemicals, but where large quantities of chemicals are bid upon it requires special transportation. There would be a serious question in my mind whether they would undertake to deliver annually 2,000 pounds of acids purchased in New York City to Kansas City. I doubt it, because that class of material can be purchased cheaper on the spot than far off.

Mr. HOWELL. Mr. Chairman, I disagree with Mr. Curtis and agree with Mr. Pickrell and Mr. Hynes on this matter. I know it is my personal experience that we have had local bidders and also have had bidders from other cities. We have had some supplies furnished at one time by Thomas, of Philadelphia, and the next year by Lyons, of New Orleans. I think the purchase of supplies and equipment for all the customs laboratories at one time is feasible. The supplies and apparatus would be of uniform quality and there undoubtedly would be some financial saving to the Government. These supplies would, of course, be limited to the standard and necessary supplies used by the customs laboratories. Provision is made in following questions for unusual supplies. It seems to me if these bids were made f. o. b. New York or f. o. b. Washington they could be packed for transportation by the bidder and the Government could pay the freight charges. I think it is highly feasible and desirable to have all our supplies bid for at the one time.

Mr. WEST. In addition to the fact of the saving to the Government there is another viewpoint which I take of it, and that is it would be

a guaranty to all of us that we would get what we want when we want it.

Mr. BATES. I may have a slightly different viewpoint on this matter from many of you owing to the fact that I have had to deal with all the laboratories. This question has been considered at the department. The one great advantage of buying in large quantities is the fact that we would have supplies available. My principal difficulty in attempting to supply the laboratories when they needed supplies was to be able to get the supplies when I wanted them. You take supplies like certain standard apparatus of which we use considerable quantities. It is often difficult to get them at all inside of several months. I am speaking now of normal times. At the present time we have had orders placed for months on certain things and haven't had a sign of a delivery. We can not do anything to force it. So far as the question of a saving is concerned, I was rather taken aback when we first computed in the Treasury Department what was the entire sum spent by the department for supplies for the laboratories throughout the service. How efficient the collection of the revenue is, and how small the cost, was brought home to me with renewed force by the fact that I found in normal times four or five thousand dollars covered the entire outlay of the department for supplies and apparatus in the laboratories. Now, the saving is inconsequential to the department. Of course, we would like to have it if it is only a penny; that is our policy provided we can get it consistent with other results, but it seems to me that that is not the major consideration. Some scheme of obtaining supplies and storing them, so that we can have them when we want them and the emergency arises is what is vitally needed. It would expedite the filling of requisitions.

Mr. McSORLEY. I have seen a catalogue of what is known as the General Supply Committee in Washington. That catalogue is as large as one of those telephone directories, and they supply everything. I do not see why we should not be able to get from them certain chemicals. I know the Bureau of Chemistry in Philadelphia does that occasionally. The headquarters, I think, are located in Washington, and somebody there could investigate and see what provision can be made for providing us with supplies of standard chemicals and apparatus listed in their catalogue.

Mr. CURTIS. Mr. Chairman, I ask consideration of question 28 in connection with this discussion.

Question 28. If all supplies are purchased in large quantities, should delivery be specified as required for use, in order to avoid the storage of large quantities of chemicals and apparatus in the laboratories? (Kansas City.)

Mr. CURTIS. In connection with this question, I believe the foregoing could be done away with. Each individual laboratory could specify its approximate needs on the first day of the year, the fiscal year, or at such time as would be chosen by the chemist in charge, bids to be taken up from the prospective sellers on the condition that quantities of each and every article on which bid is requested be delivered as required from time to time, payment to be made after delivery on that portion, the unused portion of that requisition either to be cancelled or held subject to call the following year. In that way each laboratory would get what it wants and when it wants it,

and not require large storage space in their own laboratory for the full year's supply of apparatus and chemicals. I have learned today that our chairman passes on our requisitions.

Mr. BATES. I would like to correct that—sometimes.

Mr. CURTIS. I certainly hope it will continue, because, as I mentioned informally, the last requisition sent in by Kansas City came through in express time. I have never had any difficulty in having a requisition passed by the department for any supplies whatsoever. When the laboratory at Kansas City was incorporated, nearly 10 years ago, Mr. James B. Reynolds was then Assistant Secretary. He told me personally that if I had any delay in getting my requisitions through a personal letter to him would remove the delay. The former chief of appropriations, Mr. Charles Lyman, made a similar statement, and I have never had to make a personal request to the department to hasten my supplies. My request has always been made to the parties receiving the bid. A requisition was given to the Scientific Materials Co., of Pittsburgh, the latter part of last October for an electric drying oven. To date that drying oven has not been delivered. That is no fault of the department. I think that if this question 28 were approved, that supplies in large quantities be requisitioned and provision made for delivery from time to time as needed, there would be no necessity for ordering large quantities of supplies in one particular city for delivery to all other laboratories.

Mr. BATES. In connection with question 50, which we had under discussion some little time ago, Mr. Pickrell has requested some assistance in that matter, a legal question being involved; and we are fortunate in being able to take up the discussion on that question again, with all the members of the conference present. We have with us Mr. Doherty, of the Assistant Attorney General's office. He will make a statement to us regarding that particular question. I think perhaps I had better read the question again, in order that it may be clear exactly what we are attempting to arrive at:

Question 50. What plan, if any, could be adopted, so that analyses or investigations made at one port could be used in protest or reappraisal hearings without the presence of the chemist who made the analysis or investigation? (Chicago.)

Mr. DOHERTY. In the first place, if the report of the return of the appraiser is based on a chemist's report in the first instance, when he has the goods before him, we generally find that chemist's report attached to the invoice; and it is a part of the papers transmitted by the collector to the board under the provisions of section N. When it comes that way it is a part of the record. We do not have to move it in; do not have to have it marked; it is a part of the record. As I understand it, your question applies to reports that are made possibly subsequent to the filing of the protest.

Mr. BATES. Not necessarily so.

Mr. McSORLEY. Any time after the invoice has been returned to the collector, either before or after protest is made.

Mr. DOHERTY. If before a protest has been filed and the reports are in the hands of the collector, and he forwards them with the papers, they are a part of the record without any further ado. The board will take cognizance of them.

Mr. McSORLEY. If after?

Mr. DOHERTY. That is different; if after a protest has been filed, some port will send samples to another port for analysis, the question is to get that into the record. Ordinarily I would say that you would have to produce the chemist who made the analysis, so as to identify it and state what he did. There is another way: Supposing Boston has sent a sample to New York and we have the hearing at Boston, and we want to get in the report of the analysis made in New York. It is quite possible that the Boston chemist would testify to what he did; say he sent a sample and a letter to the appraiser at New York, with request for analysis, and he received a reply to that; this report came in the due course of business, and it was an answer to his letter and an analysis of the sample he sent. In that fashion it is possible the board would admit it, but if the attorney on the other side insisted he wanted to cross-examine the chemist, I do not see how you could avoid it.

Mr. HYNES. You say if the chemist's report is filed with the original papers. Supposing at Chicago we pass an invoice upon the analysis of the chemist there and a protest is made and it has come to the appraiser for an answer. Now, before he answers it, supposing he sends a sample to another laboratory and has an analysis made and attaches that analysis with his answer to the protest. Does it then become a part of the record?

Mr. DOHERTY. I think it does. It goes back to the collector and the collector transmits it to the board. Section N requires the collector to transmit the invoice and entry and all reports that he has to the board, and being in that file it is a part of the record.

Mr. BATES. Before Mr. Doherty goes, I would like to ask if there is any question that any member of the conference would like to bring up?

Mr. SIMONS. I understand, then, if the opposing attorney demands that the chemist appear in person, it is absolutely necessary for him to appear?

Mr. DOHERTY. I think so, because naturally under the rules of evidence a man is entitled to cross-examine the witness on the other side. The moral of that is to try to get your reports in before you forward the protest to the board and then you will not have any trouble.

Mr. BATES. Returning to the question previously under discussion and in regard to the point brought up by Philadelphia, that there is an official list of quotations for the purchasing of supplies by the departments, I would state that it is obligatory for all the departments in Washington to purchase through this series of contracts which are let by the supply committee previous to each year. This list of supplies is, of course, very extensive. It covers almost everything that is used in the customs laboratories, barring special apparatus. That it has resulted in a great saving to the Government there is no doubt, because the purchasing of supplies by the departments in Washington amounts to a very large sum of money in the course of a year. Under the law, for anything which is not under contract, we have to advertise for bids and the Division of Customs has always vigorously enforced this provision of the law. When we can not secure what is provided for in the supply committee's catalogue, we have to go through considerable red tape in order to get any supplies. The supplies desired may sometimes cost only 75 cents, and there seems to be no way at present of obviating this thing. As to

why the Customs Service should not take advantage of these remarkably low bids which the Government secures, I am unable to offer an explanation. I have not gone into the matter thoroughly, I confess, but it seems to me that quite a material saving on the supplies for the Customs Service could be made, provided we could take advantage of those bids made on very large quantities, as a rule, to the departments in Washington. I am very glad the subject came up at this conference, because I am going to look into the matter at the earliest possible date. As to whether those bids refer to the delivery of material outside of Washington I can not say at present, but I see no reason, as long as the Government is buying them, why there should be any restriction as to point of delivery, the Government standing the freight.

Mr. CURTIS. The cost of freight might make the difference between what the articles are valued at in New York and in San Francisco, and it might be well to find out if those bids are quoted f. o. b. Washington or f. o. b. any part of the country.

Mr. BATES. If there is no further discussion, we will pass to the next question.

Question 29. Should specifications be adopted for the purchasing of all chemical reagents? (New York.)

Mr. PICKRELL. When I proposed that question I had in mind normal times. Of course, at the present time and in the present condition of the market we are glad to get anything we can; but during normal times I think we ought to have specifications, and I think this matter was spoken of before, that all bidders should be required to submit samples of chemicals and those chemicals be analyzed and tested to see if they come up to the specifications before the bidders are given the orders. I understand the Bureau of Chemistry does this, and I think the laboratories in the Customs Service should do the same thing. This could be done, provided we order all of our chemicals and apparatus at one time in one installment.

Mr. HOWELL. I think specifications for reagents used in customs laboratories are desirable. These specifications might be worked out in connection with the publishing of a manual, as it would require some time to determine what lines should be drawn. On the other hand, there are many manufacturers of analyzed chemicals, and it is already customary to specify a grade of reagent sufficiently pure for the purposes intended. A central bureau might establish these specifications and demand such purities in their purchases.

Mr. BATES. If there is no further discussion, we will pass to question 30.

Question 30. What procedure would be most desirable and practicable to enable the chief chemist to obtain a limited amount of supplies in an emergency? (Philadelphia.)

Mr. CURTIS. I ask that questions 31 and 32 be considered with that question.

Question 31. What procedure would be most desirable and practicable to obtain quickly needed repairs involving small expense? (Kansas City.)

Question 32. Is it desirable that each laboratory be allowed a fixed sum annually for the purchase of books? (Baltimore.)

Mr. McSORLEY. It frequently happens at the port of Philadelphia—and, I suppose, at all the other ports—that in cases of emer-

gency we need immediately new apparatus or new chemicals or repairs to apparatus. At the present time there is no way of getting either the supplies or repairs within a reasonable time. I understand the chiefs of the Bureau of Chemistry laboratories have at their command a sum of \$50 annually for supplies, and I think it is most essential that we should have a like sum. I think that there should be some authorization from the department to the chiefs of laboratories empowering them to purchase supplies of this character or to make needed repairs in cases of emergency, and that the department pay the bills when approved by the chief chemist.

Mr. CURTIS. In connection with this, I believe that an emergency fund should be at the disposal of the chief of each of the laboratories. From this fund he can make necessary purchases or make minor repairs to apparatus, getting a receipt therefor, and submit it monthly to the department. That would obviate the necessity of getting a requisition through for these articles and get around the unnecessary delay. I have in mind that we need occasionally small purchases, amounting to probably 50 cents or \$1. It is utterly impossible to spend that money with any hope of being reimbursed without going through the proper channels. If this emergency fund, amounting to, say, \$5 or \$10, would be replenished when used up I think it would answer the needs of the laboratories. It is not much, and the department could depend on the discretion of the chemist in charge not to spend it uselessly.

Mr. PICKRELL. I know that authority is vested in the superintendent of supplies at the port of New York. He can purchase on emergency not to exceed about \$10. I have time after time called him up on the wire and told him we needed certain things. He takes a description and orders it, and as soon as it is delivered a requisition is made. It is signed by the appraiser and sent to the collector, and the bill is authorized and paid. If it were not for that fact we would certainly be placed in a very peculiar situation at different times. Oftentimes we need repairs quickly. Oftentimes we need some chemical quickly. Sometimes our supply of a certain chemical or apparatus has to be replenished and we have not noticed it in time, and I know the superintendent of supplies at this port has that authority.

Mr. HOWELL. Mr. Chairman, that may be the custom in New York, but I do not think many of the other ports have such an official as a superintendent of supplies, and I think both of these questions covered by 30 and 31 are decidedly important to us. Some provision should be made for the customs laboratories to obtain immediately a limited amount of emergency supplies. We purchase our annual requisition, and try to provide for everything we believe we are going to need in the year. If during the course of our work we find we need some small amount of chemical or minor repairs have to be made, we have no provision for the immediate necessity, and it is to cover such necessity that this fixed sum should be set aside. Frequently a small amount of special reagent is needed in a test and some limited amount of money per annum, say \$50, should be set aside for this purpose, and have that limit put upon the amount to be spent. The chemist should feel that he can purchase these supplies and get them immediately, as thereby the work would not be hampered by the lack of

such repairs or supplies. This matter is one which is a pressing need in the customs laboratories. A scheme similar to the one above, the setting aside by the department of a small fixed sum, for emergency repairs in the customs laboratories is highly desirable. The delays incident to obtaining these repairs by the present method of requisition are often such that they seriously interfere with the conduct of official work.

Mr. CURTIS. Very frequently we have to have immediate repairs, such as a valve, and so forth. A valve was broken in unpacking and it necessitated the purchase of a new one for the sum of 25 cents. I did not see fit to send the bill in to the department for it. Samples are transmitted in envelopes to Kansas City. When they arrive they are torn. We need some gummed paper to retain the original container. There is no provision made to purchase that. Now, if this sum were available all these small supplies could be purchased and at the end of the month an accurate account rendered for the money expended.

Mr. McSORLEY. A great deal depends on the local officials. I think without doubt there should be some provision for getting these supplies.

Mr. WEST. I do not know about the Treasury Department, but I know in other departments they have what is known as a contingent fund, and each chief of every department is authorized under that contingent fund to purchase anything up to the amount of \$10 in one month that he needs. It is limited that way to \$120 a year.

Mr. BATES. I would like to call on Mr. Griffith to give us any information he may have in this matter. He has had some experience in the division regarding matters of this kind.

Mr. GRIFFITH. The collectors at all the big ports have a contingent fund. I know we supply sometimes anywhere from \$300 to \$1,000. Each collector has on hand a sum for such expenses as these, and he has authority to purchase anything in the case of emergency. It is provided for by section 2274 of the Revised Statutes, which says that bids must be taken unless it is an emergency case, and, of course, the collector is the only one who has authority to keep that fund on hand. Anybody else to have it would have to be bonded, so you ought to be able to get them through the collector.

Mr. HOWELL. That is probably true, but if the collector feels he wants to spend that contingent fund on things he considers more necessary than laboratory equipment, where are you going to get it? If there was some part of that fund set aside for the laboratory, say, \$50 a year, we would have something to go on. That would mean we could spend so much on our emergency supplies. Very frequently you want a thing immediately; and if it is necessary to wait for it, its value is lost. These repairs and supplies are all needed immediately.

Mr. CURTIS. In connection with this, I think the information required for investigation, which was discussed under another question, would also apply here. An emergency or contingent fund, or whatever it might be, could be utilized for that purpose, too, and it would be well to have a contingent fund for all these emergencies.

WEDNESDAY, March 8, 1916.

Mr. BATES. In order to bring about a crystallization in some shape of what matters should be made the subject of specific recommendations to the department in our final report, and upon which matters we will have an informal discussion, I would like to entertain a motion, if anybody sees fit to make it, that the Chair appoint a committee to take up and consider what matters should be included in specific recommendations to the department.

Mr. CURTIS. I move that such a committee be appointed.

Motion seconded by Mr. Simons and carried by unanimous vote.

Mr. BATES. I will appoint a committee to bring out the ideas on this matter. I will appoint Mr. Hynes, Mr. Howell, and Mr. West as a committee to talk over this matter as they have time, or, if necessary, to take time away from the conference.

We have quite a number of questions to cover to-day, and you know what rate of progress we have made so far. Mr. Pickrell has extended an invitation to the members of the conference to go through his laboratory. It would also be a pleasant event for the conference as a whole to go down and greet the appraiser, which may or may not be necessary if he accepts our invitation for this evening. If we can get through the questions we might possibly be able to do that to-day. We might consider the advisability of having a short session to-morrow. We should have these questions in mind and regulate ourselves accordingly. I believe the questions that we have to-day are such that they are not likely to call for quite so extended a discussion as some of the earlier ones.

Question 32. Is it desirable that each laboratory be allowed a fixed sum annually for the purchase of books?

Mr. SIMONS. The allotment to each laboratory of an annual fixed sum for the purchase of books offers, in my opinion, many advantages and but few drawbacks. Such a plan would undoubtedly prove to be the quickest, most convenient, and least formal means for procuring necessary books and periodicals. The usual stereotyped request for authority to purchase, which ordinarily has to pass through prescribed official channels, would be eliminated, and the consideration and approval of its necessity by those, who perhaps may not be fully informed as to the needs of the laboratory, would be avoided, thus making possible the saving of much time. Again, too, many really necessary books, the purchase of which in some cases is not requested by reason of a fancied notion that the expenses of the port would be unduly increased, could be obtained without embarrassment. Further, in contradistinction to this undesirable form of economy, this fixed allotment of money would in itself create a true and reasonable means for exercising it. In other words, where no definite appropriation is prescribed and where a request, with no accounting, for authority to order is only required, there might possibly be a tendency toward extravagance, inasmuch as probably a more careful consideration of contemplated purchases would be made if a restriction were placed on the annual expenditure allowed for such purposes. That is to say, more careful buying might result.

On the other hand, it might be argued that this proposed annual appropriation should not be recommended for two reasons: First, because in some instances it might result in unnecessary expenditures of money; this would be illustrated by assuming that a chief of labo-

ratory, upon finding toward the end of the year that some unexpended money still remained to his credit, would use this balance for buying not altogether necessary books, rather than allowing it to be returned to the Treasury. The truth of this assumption seems so very improbable that I think it needs no discussion. Second, because it might happen that some much desired books could not be bought immediately if the appropriation had been exhausted. If that contingency should arise, however, which seems unlikely if a reasonable annual sum be provided, those particular publications could probably be borrowed or consulted without much trouble for the short time until the next appropriation became available. This would seem to me to be of minor importance.

To sum up—the advantages offered by the proposed annual appropriation are so significant that, in my opinion, the plan should be recommended for adoption; the amount fixed for each laboratory to be dependent upon the needs of each, and the estimates made to be based on the information furnished by the chief chemist. It is suggested also that provision be made for the appropriation to include, in addition to the purchase of books and periodicals, the cost for permanently binding the latter.

Mr. CURTIS. Would it be possible to incorporate under that question, for the quicker dispatch of business, questions 39 and 40? Would the conference agree to discuss all three questions at the same time? That is, "Should all books and periodicals in the customs laboratories be standardized?" (q. 39), and "What periodicals are most desirable as an aid to general laboratory work?" (q. 40).

Mr. BATES. It seems to me there could be no objection to that.

Mr. CURTIS. Also question 49, "To preserve for future reference; should not the department authorize the binding of all technical periodicals subscribed to by the laboratories?" Mr. Hynes has touched on the subject of the preservation for future use of periodicals, and I think that to facilitate the work of the conference those four questions might be discussed at one and the same time.

Mr. BATES. There should not be the slightest objection. As to whether we would gain time, since these specific points are covered by individual questions, by discussing them all in a body, or whether we should take up each point separately, I do not know. I would like to get an expression of opinion on each one of these subjects.

Mr. CURTIS. I heartily concur in what Mr. Simons has said in reference to the appropriation of a fixed and certain amount for the specific purpose of purchasing books for the chemists' laboratories, but I would hardly ask that the same amount be appropriated for the purchase of books for the laboratory at Kansas City that would be demanded by the laboratories at New York, Chicago, Philadelphia, or others. I have known of cases where a certain amount had been appropriated for the purchase of supplies for a laboratory and at the close of the year, in order to use up the portion of the moneys remaining on hand, books were purchased by the laboratory, and I might say that a number so purchased were really purchased to exhaust the appropriation, so that nothing should be returned. This does not apply to a Federal office, I wish to state. It is a municipal laboratory I have in mind.

Mr. PICKRELL. I think that the idea of having a fixed sum for the purchase of books is a very good one indeed. The port of New York

has been very fortunate in the past two or three years in having its requisitions for books filled, but nevertheless, if laboratories had a fixed sum that they knew was at their disposal every year for the purchase of books; they could from one year to the next plan on what books they would purchase. As it is now, you put in a request for books and you hesitate on whether or not you will ask for all the books you will actually need, or you will probably pick out some of the most important for fear that if you make the request too large you will not get any at all. I have been informed that the laboratory of the Internal-Revenue Service in Washington gets \$250 a year for the purchase of books. There is a provision of law whereby \$500 is provided for the Internal-Revenue Service for the purchase of books and this \$500 is divided between the law department and the laboratory of this service, and consequently the laboratory gets \$250. This laboratory covers about three or four lines of merchandise—butter, oleomargarine, alcohol, whisky, and alkaloids. The customs laboratory is likely to receive anything that is grown on the face of the earth or anything that is manufactured in the world. For that reason we should have at our disposal a certain sum of money for the purchase of books annually, and so that that sum could be used practically at the discretion of the chief chemist of the laboratories of the different ports, so that each year they could figure on just what books they would purchase from year to year.

Mr. SIMONS. I would like to say, in this connection, that I was formerly first assistant chemist in the internal-revenue laboratory, and Mr. Farrell is quite right when he states that a \$500 allotment is made to the Internal-Revenue Bureau for the purchase of books, to be divided between the law department and the laboratory. Very often the law department would have an unexpended balance in their favor, which they turned over to us, and frequently we had a balance on hand at the end of the year which we turned back to the department rather than spend it extravagantly.

Mr. HOWELL. I think it is very desirable that a fixed sum be allotted annually for the purchase of books. I suggest, say, \$50 per annum. This is along the line of allowing a fixed sum for the purchase of emergency reagents and also for the payment of emergency repair bills. I think that this is a very important point. It is a matter of great inconvenience to us in the laboratory work that we are not able to obtain emergency supplies, books, and reagents. This is something which really inconveniences the work at times, and if a fixed sum were allowed to us by the department we could obtain these books as we need them. It is not necessary that we should expend that amount each year, but we should be allowed a sum sufficient to cover our needs. If we did not spend the full amount, it could be returned to the department. I venture to say that some of the laboratories have no libraries. In many cases I have personally bought books for official use. I own the library in my laboratory, but if I had some fixed amount I would feel justified in going into the matter further and purchasing books which we really need. I think this is a very important matter.

Mr. CURTIS. I would hesitate about specifying a fixed sum of \$50 per year for the purchase of books. As Mr. Simons has said the Internal Revenue at Washington, with three or four special lines of merchandise to cover, has an allowance of \$250 per annum.

In Mr. Howell's laboratory, which is deficient in a library, it might necessitate an initial expenditure of probably \$200, while in Mr. Pickrell's library, which is comparatively complete, only a small expenditure would be necessary, and therefore I would hesitate about recommending any specific amount. Let that be at the discretion of the department, or let a committee be appointed by the chairman of the conference to ascertain what books would be actually necessary to begin a good library.

Mr. HOWELL. In answer to Mr. Curtis, I would say that my remarks were based upon the proposition that the customs laboratories had already been supplied with some sort of a library. This \$50 was simply for the purchase of new books. In the discussion as to what books are necessary for a standard library, I was presupposing that the customs laboratories had some library.

Mr. WEST. On the 1st of January, 1914, we sent in a report showing the total number of samples examined and the methods used in their examination, and a list of about what would be necessary in the line of supplies for the coming year, and also a list of books that we needed. I heard no more about it until just about Christmas time I was in receipt of about two different lots of books, and I do not know who to thank for them. It makes me think that perhaps somewhere in the Treasury Department somebody is making an effort to standardize our libraries. They came from Washington, and they related to clays, assaying, textiles, the manufacture of textile materials, colors, and dyeing processes, and the examining of dyes, metals, and alloys.

Mr. HYNES. I think that Chicago must be fortunately situated. We have had no difficulty in getting books. We have even been able to get books on emergency. However, I should be averse to this conference going on record as recommending the expenditure of money.

Mr. WEST. I think that the department is endeavoring to increase our efficiency. This is shown by the mere fact of our being here.

Mr. PICKRELL. I think it would be proper and best for the conference to go on record as favoring an annual expenditure of a sum of money for books and leave it to the department or the supervising chemist for decision as to the amount of money which should be spent annually for the libraries of the different ports. In our library at the port of New York it would be very advantageous if we had a fixed sum which we could spend, so that we could lay out a definite plan for the building up of our library.

Mr. COBURN. I think that each port should have a definite sum for the library each year. We have a library at the port of Boston. If we had \$75 or \$100 a year it would keep it in a state of efficiency.

Mr. HOWELL. I think this matter is related to the question of emergency supplies and repairs and if some scheme can be adopted by which a small sum is available for this purpose, probably the purchase of books could be included.

Mr. BATES. Were it not for the fact that it is necessary to hold down the number of individual recommendations made to the department, I should favor going on record for some such sum as \$50 a year, which will suffice for our ordinary needs. The handicap of lack of books has impressed me so at all the laboratories that I have made very considerable efforts to increase the libraries of the different ports at different times. The question is just as fundamental as

having equipment and reagents. I think we might defer further discussion of the question of a fixed sum until the committee which we appointed this morning makes its report on recommendations to the department, when the subject can be brought up again.

Question 39. Should all books and periodicals in the customs laboratories be standardized?

Mr. PICKRELL. The idea I had in mind in proposing this question was that, in the expenditure of money for books, that money be spent for standard authoritative books and publications—standard books of applied chemistry and periodicals. Most of the members of the conference are members of the American Chemical Society, and for that reason get the three periodicals published by that society, and besides that there are a number of other recognized leading periodicals dealing with the science of chemistry that should be in our libraries. I thought if we were to standardize as soon as possible the periodicals and books it would be of great assistance in getting a certain specified sum to be used in the purchase of books and periodicals, to show to the department that certain books were of an essential character and nature; that these books should be at the disposal of chemists in all laboratories.

Mr. HOWELL. I think it is desirable that all books and periodicals used in the customs laboratory be standardized, in the sense that each customs laboratory be furnished with the same equipment as to its library. This should include the latest editions of standard works on chemistry, chemical analysis, and such special technical books of reference as the needs of the work may require. The following is a partial list of the works which I think are essential:

- Leach. Food Inspection and Analysis.
- Allens. Commercial Organic Analysis.
- Sadtler. Industrial Organic Chemistry.
- Lewkowitsch. Chem. Technology and Analysis, Oils, Fats, and Waxes.
- Sutton. Volumetric Analysis.
- Hanausck. Microscopy of Technical Products.
- Matthews. Textile Fibers.
- Browne. Sugar Analysis.
- Spencer. Handbook of Sugar Manufacture.
- Rolfe. The Polariscopic.
- Landolt. Optical Rotation Organic Substances.
- Treadwells. Qualitative Analytical Chemistry.
- Treadwells. Quantitative Analytical Chemistry.
- Gooche. Methods of Chemical Analysis.
- Mulliken. Identification of Pure Organic Substances.
- Blair. Chemical Analysis of Iron.
- Low. Technical Methods of Ore Analysis.
- Toch. Chemistry of Paints.
- Sabin. Technology of Paints and Varnishes.
- Wood. Rustless Coatings.
- Meade. Portland Cement.
- Wiley. Principles and Practice Agricultural Analysis.
- Richter. Organic Chemistry.
- Swartz and Julius. Dyes.
- Fuller. Qualitative Analysis Medicinal Preparations.
- Rhead and Sexton. Assaying and Metallurgical Analysis.
- Hinds. Inorganic Chemistry.
- Thorpe. Dictionary Applied Chemistry.
- Lunge. Coal Tar and Ammonia.
- Lunge. Manufacture of Sulfuric Acid and Alkali.
- Pharmacopœia.
- Industrial Inorganic Chemistry.

These are books that are urgently needed in a standard library.

Mr. McSORLEY. I understand it is customary for the laboratories of the Bureau of Chemistry to receive from the central laboratory at Washington standard works of reference and certain periodicals—that is, all of the laboratories of the Bureau of Chemistry receive them—without any request, and I understand that for unusual books they make the ordinary requisition the same as for supplies. If we had a central clearing house or a supervising chemist, I think it should be a part of his duties to furnish all our laboratories with standard works of reference and leave the unusual and special books for each individual laboratory to the ordinary requisition.

Mr. BATES. These questions are of great moment and are vital to the efficiency of our laboratories, and I have had the personal experience of running into the point involved in these questions as often almost as any subject in the manipulation of our laboratory, and I am very anxious to get a full expression of the views of the members on them.

Mr. SIMONS. I would like to say that I, personally, lose a great deal of time in having to go to different libraries to consult various works of reference. Sometimes I have to go to Washington to get the information I want. The time that I lose certainly more than offsets the small amount of expenditure which it would be necessary for the Government to make to procure standard books for my library. The very fact of the needless waste of time, seems to me, should be a very important feature in this connection. The money consideration is of a great deal less importance.

Question 40. What periodicals are most desirable as an aid to general laboratory work?

Mr. HOWELL. To my mind the following periodicals are necessary in a chemist's laboratory:

- Journal of American Chemical Society.
- Journal of Industrial and Engineering Chemistry.
- Chemical Abstracts.
- Journal of Society of Chemical Industry.
- Chemical Engineer.
- Oil, Paint and Drug Reporter.
- The Analyst.
- Annalen der Chemie-Leibig's.

Of course there are many other periodicals which should be used, but those seem to be the most important. In addition to these I also think that the following publications of the Government should be furnished to the various customs laboratories as they are issued:

- Bulletins of the Bureau of Standards.
- Bulletins of the Bureau of Chemistry.
- Bulletins of the Bureau of Forestry.
- Bulletins of the Bureau of Mines.
- Bulletins of the Geological Survey.
- Report of the Mineral Resources of the United States.
- Yearbook of the Department of Agriculture.
- Daily Consular Reports.

Mr. PICKRELL. About two years ago the laboratory at this port got from the Bureau of Standards all the publications they had at that time. The laboratory was then put on the list to receive all of their papers. We got, at that time, all the bulletins published by the

Bureau of Chemistry. At the same time we were put on their list. We receive practically all of the periodicals that Mr. Howell has mentioned, and besides that we have an agreement with the different examiners to get the periodicals that they receive—The Textile World, the India Rubber World, and so forth. These periodicals are sent to the laboratory, and we keep them for a period of 10 days or two weeks, during which time the chemists have an opportunity to look them over. The chemist notes in his card index all articles of interest in the periodicals, so that if at any time he wants to look up any of those subjects he can refer to his card index.

Mr. BATES. I think the subject of keeping in touch or having an understanding with the collector or appraiser regarding the use of magazines which the examiners may receive is an excellent one. I long have known that the New York laboratory was doing that, but I do not know whether the rest of you are doing the same.

Question 49. To preserve for future reference, should not the department authorize the binding of all technical periodicals subscribed to by the laboratories?

Mr. PICKRELL. All the members of this conference know that the value of any periodical is the value of that periodical for future reference. It is not so much the information it may contain at the very time of the receipt of that periodical, although many times the information is of interest, but its use at some future time for reference is important.

The New York laboratory is very conveniently situated in that the collector of customs has a binder for customs periodicals. We started in about three years ago to have all our periodicals bound. Practically all of them have been bound up to the year 1915. As we receive the periodicals they are kept on file and at the end of the year they are sent to the customhouse to be bound. I think that every laboratory in the Customs Service should have the essential periodicals on chemistry bound so that they can be used for future reference.

Mr. BATES. I would like to hear from each member of the conference as to how many periodicals he has in his laboratory purchased by the Government.

Mr. WEST. The only periodicals that I get are handed over to me after they are perused by an examiner, the Daily Consular Reports.

Mr. HYNES. I do not know just how many we get, perhaps seven, eight, or nine, or something like that. Some of the examiners get periodicals like the Textile World that come to the laboratory and are sent back to the divisions.

Mr. CURTIS. The department furnishes the Engineering and Mining Journal. That is an absolute essential in the liquidation of zinc-bearing ores because the contracts call for the prices as quoted in the Engineering and Mining Journal on the date of importation, for the purpose of liquidating the entry.

Mr. SIMONS. The Government furnishes the laboratory at Baltimore only the bulletins and publications of the Bureau of Chemistry.

Mr. COBURN. The only periodical that we have at Boston is the Paint, Oil, and Drug Reporter. I would add that I am a member of the American Chemical Society, and I have the three periodicals published by that society nearly all bound and I keep them in the library for use.

Mr. McSORLEY. The Philadelphia laboratory gets the three journals of the American Chemical Society, the Journal of the Society of Chemical Industry, the Analyst, and Metallurgical and Chemical Engineering. We have access to the Oil, Paint, and Drug Reporter, which is received by one of the examiners.

Mr. HOWELL. The Customs Service does not subscribe to any chemical periodicals at New Orleans. In the food and drug laboratory, which is in a room next to mine, they get the Oil, Paint, and Drug Reporter and the Analyst. I subscribe personally to the journals of the American Chemical Society and the Journal of the Society of Chemical Industry.

Mr. McSORLEY. I think that while most of the members of the conference are members of the American Chemical Society, aside from their own personal subscriptions, the Government should subscribe for the journals of the society. If, for any reason, the chemist wishes to take his books away some one else might want them and they would not be available.

Mr. PICKRELL. The laboratory at this port receives the three periodicals published by the American Chemical Society, the Analyst, the Journal of the Society of Chemical Industry, the Journal of the Society of Dyers and Colorists, Chemical and Metallurgical Engineering, Journal of the American Leather Chemists' Association, the Färber Zeitung und Zeitschrift für Untersuchung der Nahrungsund Genussmittel, and the Chemiker Zeitung. We receive from the examiners the Oil, Paint, and Drug Reporter, the India Rubber World, the Textile World Record, the Sugar Industry, the International Confectioner, the Pharmacist, the Engineering and Mining Journal, and the Chemist and Druggist.

Mr. BATES. I had not thought before of just what journals the various laboratories were receiving regularly. I think it is apparent to all of us that the horrible truth is worse than we anticipated. We have practically nothing in most of the laboratories. The question of the standardization of periodicals is a very important one, and I do not recall whether the previous question on that point covered the standardization of periodicals as well as books. It seems to me it did. The standardization of periodicals is to me more important for the laboratories almost than the books. Certain periodicals at least are needed.

Mr. HYNES. Would it not be appropriate to have the Chair appoint a committee of three, of which the chairman would be a member, to investigate this question of books and periodicals with a view of making recommendations to the collectors or to the department for the supplying of periodicals and books? I think it will require some study before we know exactly what we do want and exactly what should be done, and I think that can be handled by a committee more efficiently than by the conference as a whole. If it is in order, I make a motion to that effect.

Mr. HOWELL. I think it might be advisable in one sense to have a committee, but in another sense it would not be necessary. We have a committee already appointed for recommendations to the department, and I feel that if we make our recommendations too full we may not get anything. We must make them as brief and to the point as possible, and there are so many things necessary, as has been shown in the discussion, that we can not hope to include everything.

I feel that this purchase of books is a matter to put before the local appraiser or collector. The sense of this conference will be apparent in the printed form in which it is furnished to us. That could be used as an argument with the appraiser if necessary. Any further authority would have to come from the department anyway, so I feel that it is not really necessary to appoint a committee.

Mr. PICKRELL. I think it is the sense of the conference, and a motion has been passed to that effect, that we have a committee of three appointed to collect and distribute standard samples; and I think there is another proposition here that should be referred to a committee, the question of a laboratory manual, and also recording and reporting samples, and I agree with Mr. Hynes that this should be referred to a committee and that two or three matters should be combined.

Mr. McSORLEY. I agree with Mr. Pickrell. If we get a great number of committees it will only confuse things. I think we should have as few committees as possible, consistent with the ends we wish to attain.

Mr. BATES. The crying necessity is very apparent for committees on a number of things, and the question of books and periodicals is one that could be handled very nicely by correspondence, if necessary. The question of authority for these committees to act is one that has bothered me ever since this conference started, and whether their correspondence would have to be carried on through their appraisers or whether the department should grant them authority to correspond directly on these matters is a very important question and has influenced my actions as chairman of this conference in a number of instances. On that account I would like to state that my own point of view is that I agree with what has just been said by New York and Philadelphia, that, if possible, we hold this thing at the present time to one committee, whose fundamental object will be the compiling of the manual. It would be necessary to secure authority for that committee to act on that particular point and I do not think that we should burden the department with other committees until such time as we can secure general authority in conferences of this kind to ourselves appoint committees on strictly technical subjects and have them empowered to act.

Mr. HYNES. What I had in mind was to get the consent of the department for the committee of three to make specific recommendations to the individual laboratories as to the most desirable books and magazines to have and to the means of getting on the mailing lists of the various bureaus which furnish these magazines and the matter that would not at all become official. It is simply an agreement among the members of the conference and requires no official sanction. If that same work can be vested in this permanent committee, that would be so much better. I do not believe in multiplying the number of committees, and if any of the other committees can handle the matter, then I withdraw my motion.

Mr. BATES. It has been my intention, if we could secure from the department authority to go ahead in certain of these matters, to bring about in some way the appointment of a number of committees on various things. The standardization of books and periodicals is only one of a number of things that should be considered. However, I

would like to see very much the whole matter simplified as much as possible at the beginning. All this is contingent upon the department's acquiescing in anything which we may see fit to recommend to it. I would therefore suggest, in line with what has been said that Mr. Hines exercise his discretion as to whether he desires to withdraw that motion or not. It seems to me that it would result in the simplification of the matter to let the committee on the manual give it some thought.

Mr. CURTIS. As a point of information, would the members of this conference be permitted to correspond officially between laboratories without going through either the appraiser or collector of customs? Could permission be granted by the department for such correspondence, in order to facilitate the work of compiling this manual and numerous other questions which are before us?

Mr. BATES. There is no doubt but what it could be done. That it is exceedingly desirable, I think every member present realizes. As to how the appraisers at the various ports might view this suggestion I am in doubt. I would like to hear an expression of opinion from anybody on that point.

Mr. HOWELL. I do not believe that the department would object to correspondence between members of this conference at any time directly. In most cases the appraiser knows nothing about chemical matters. As far as any personal correspondence along chemical lines between two chemists in the Government service is concerned, I can not conceive of any objection.

Mr. CURTIS. I meant in an official capacity.

Mr. HOWELL. How do you distinguish between official and unofficial?

Mr. CURTIS. Something appertaining to the work of the department.

Mr. HOWELL. A personal request for a method in use in another laboratory—have you not a right to ask for that personally?

Mr. CURTIS. Yes.

Mr. PICKRELL. I think that, as a matter of official etiquette, authority should be granted by the department, in order that nothing may arise in the future that will involve any of us in a controversy. I think the wise thing for us to do would be to get permission from the department.

Mr. COBURN. I agree with Dr. Pickrell that we should obtain permission from the department before we proceed to communicate with each other. I feel that the appraisers of the ports might think it a matter of official courtesy to be consulted in a matter of this kind, unless we had special authority from the department.

Mr. WEST. I am not a great stickler for conventionalities, but I believe in following out procedure, and I have never had any trouble with any of my communications by sending them through the appraiser. I have before me a sample that was sent to me from the San Francisco laboratory, with the request that I inquire of Mr. Pickrell as to its composition; as to whether or not the component material of chief value was determined by its value as it is, or whether the labor in braiding it had anything to do with it. We never know where it is going to end up. This may possibly come before the board, and if my opinion or my letter had not been sent in due form

through the office of the appraiser and recorded by the clerk, when this came up officially, the appraiser would have said, "I have no official cognizance of it. It never passed through my hands." I think that outside of purely personal letters, all our correspondence should go through the appraiser. I think, in the long run, it is the easiest way and saves embarrassment.

Mr. HOWELL. I agree thoroughly with Mr. West, and my idea about it was that correspondence between chief chemists was of a personal nature. There is a law in the Customs Service that no official information relative to merchandise can be divulged, and under that law it would be manifestly impossible for us to correspond about merchandise or official samples, but without referring to any specific sample it seems to me that we should be able to correspond in a personal way. I would not have any hesitation in going to the food and drug laboratory and asking the chief chemist as to how he made a certain test, without first going to the appraiser. It is simply personal correspondence that I referred to.

Question 33. In the interest of economy and efficiency should not a standard quantity of sample for various kinds of merchandise be specified for transmission to the laboratory? (New Orleans.)

Mr. HOWELL. Mr. Chairman, in the interests of economy and efficiency I think it is desirable that a standard quantity of various kinds of merchandise be specified for transmission to the customs laboratories, for the following reasons: (1) It is necessary to have sufficient material to make all the needed tests and retests and to retain a portion as reserve; (2) to take amounts of samples beyond that is poor economy and often a hardship on the importer; (3) by requiring a standard amount of sample the work of the sampling officer is simplified and unnecessary work prevented, and frequent requests for more sample obviated.

I have a list here which might be established for the use of the sampling officer or sampler. This is merely a tentative list. It covers wines, vinegars, creasote oils, lubricating oils, mineral oils, fats, chemical salts, chemical and alcoholic compounds, ores and minerals, asphaltum, glycerin, metals, arsenious acid, balsams, drugs and resins, coal binitrotoluol, wood pulp, fertilizers, cements, crude fibers, mixed paints, and waxes. All the above materials are imported in bulk, and samples of the same are usually taken on the wharf or transmitted from a subport to the customs laboratory. Where merchandise is imported in definite containers, it is customary to transmit a full container to the customs laboratory, where the required amount is taken and the partially emptied container returned to the importer. On most bulk goods a list can easily be established giving the amount of a standard laboratory sample and considerable saving may be made in convenience to the Government and in material to the importer.

Mr. PICKRELL. Mr. Chairman, I think that questions 33, 34, 35, and 41 could be all grouped together.

Mr. BATES. My objection, as I have stated previously in reply to the suggestion of Kansas City on the grouping of these questions, is that it makes it more difficult to get out of the record the information on these specific points where the discussion is not segregated. I

find in my own case that I have a tendency to ramble and not stick to specific points. I think that we might advantageously consider these questions one after the other, eliminating for the time being the intermediate questions, the same as we did on the subject of books and periodicals. What were the questions you mentioned, Mr. Pickrell?

Mr. PICKRELL. 33, 34, 35, 41, and also 45.

Mr. BATES. Suppose we consider them, then, in that order, so that the entire subject can be considered while we are on it. Is there any other discussion of question 33?

Mr. CURTIS. In regard to question 33, all ports transmitting samples imported to the laboratory at Kansas City are instructed to transmit a uniform sample of a certain size and character, containing certain markings. In the event that a portion of this sample is to be reserved for the Board of General Appraisers, it is done in the laboratory at Kansas City. There is a sufficient amount, approximating 4 to 6 ounces, which is handled for all chemical analyses, and the reserve portion kept. The samples are uniformly marked with bond number, port from which they are sent, car number in which they are imported, and if not on the sample, a letter accompanying the sample gives this information. That, I think, should be followed in the transmission of all samples to the laboratory for analysis, and for the purpose of preserving samples; if a uniform size container could be had it would facilitate matters for the chemist in charge in caring for and storing his samples.

Mr. WEST. This question, like all the others, seems to hark back to the necessity for a central laboratory and a supply table upon which to make requisitions, and I had answered that question a little in advance of itself by saying, "Yes; uniform sample bottles, screw-cap jars, mailing tubes, and so forth, should be on the supply table for requisitions." These questions are all interrelated. I think that if standard-size containers are procurable by the laboratories there will be no trouble at all in transmitting samples; but the individual whim of the chemist will influence that somewhat. Personally I use a 250 cubic centimeter flask of oil in taking the specific gravity, as I find it is better to use a large quantity of oils than a small one. A 1-pint bottle would give me ample, and in case of a protest I still can divide that in half and send 8 ounces to New York.

Mr. PICKRELL. I think this is a very important question. As a matter of fact, all of these—3, 34, 35, 41, and 45. And relative to question No. 33 I know that we have experienced difficulty in regard to samples that have been sent to the C. V. R. department and have in the course of business come up to the laboratory for analysis. We have received them in all kinds of containers, and sometimes the container would be broken in transit. Sometimes the containers are inadequate for the character of merchandise that they contain, and also at times the quantity of the sample is insufficient, and I think if some definite procedure is adopted whereby specifications can be drawn up and those specifications can be submitted to the different ports, why, it will greatly facilitate these matters. I know that various ports have no laboratories, such as Detroit, Buffalo, Cleveland, and Cincinnati. In transmitting samples they have no knowledge of what size or what quantity is necessary for chemical analysis, and

they have no knowledge probably as to the proper containers that should be used.

Mr. BATES. Here again the question arises of a committee. This most important subject, it seems to me, should have careful and detailed study by a committee in which the findings would eventually be transmitted to the department and to all the ports in the country. The amount of work which is developing which is needed to be done is almost monumental, as has been shown by what has been brought out in the two days and a half we have already been in session. I wish the committee would think over the matter regarding whether a specific recommendation should be made to the department covering this subject. Perhaps I had better postpone any further remarks until we have covered this question of sampling.

Question 34. To what extent would it be advisable to have the sampling of materials which are to be sent to the laboratory for test under the direct supervision of the chief chemists? (Philadelphia.)

Question 35. Should there be regulations specifying the size and character of samples and containers for samples when materials are subject to laboratory test, as well as specific regulations covering the sampling of merchandise which requires a chemical analysis? (New York.)

Mr. McSORLEY. In my opinion, the sampling of all materials submitted to the laboratory should be directly under the supervision of the chemist in charge. We all know that the analysis of a sample is no better than the sample itself, and while the analysis is made by an expert trained along technical lines, the samples in most cases are taken by men with little if any knowledge of accurate sampling. We have had cases at our port, Philadelphia, where I know the sample we got was not truly representative of the goods, and when we have been put on the witness stand before the board and our sample was put in evidence, its appearance was entirely different from the appearance of the sample that had been sent to the Board of General Appraisers. While there may have been something the matter with the official sample, still there have been one or two cases in which we have found that the sample was not properly taken. The sampler should be located in the laboratory and should come to the chief chemist for instructions as to how to take the sample, and so forth. The matter is, I think, of utmost importance, because it is the beginning, it is the fundamental principle of all our work; not only can we tell the sampler how to take the sample, but how much sample to take in each specific instance.

Mr. COBURN. I agree with Mr. McSorley that this is a very important question. At the port of Boston the sampling of merchandise is under the direction of the chemist in charge and his assistant, so far as it relates to drugs, medicines, chemicals, and so forth. I believe it would be advisable to adopt this method at all ports. In regard to samples of metals and fabrics, and samples taken on the wharf, they are not under the direction of the chemist in charge, and we have had considerable trouble in getting proper samples.

Mr. PICKRELL. Mr. Chairman, I doubt if that procedure could be enforced at the port of New York, for there is a large force of samplers, and although we have experienced considerable difficulty in obtaining proper size samples and samples that are representative of the importations, I doubt if the sampling could be under the supervision of the chemist in charge. I believe that the proper thing to do

is to adopt specifications as to the proper method of sampling different kinds of merchandise and the proper size sample to be forwarded to the laboratory for analysis, and have these specifications approved by the department. I know we have had considerable difficulty with samples of ore in lump form. Although the regulations state that a commercial sample should be taken, nevertheless we receive lump samples. It is worse than no analysis at all to make an analysis upon a sample that is not representative of the importation, because a conclusion is arrived at from an erroneous hypothesis or erroneous facts. We have had difficulty with samples of crude opium, cheese, oils, and a number of different things. I think that the proper thing to do is to have all this matter referred to a committee and that committee adopt specifications, and see if the department will approve of those, and transmit them to the various ports. I do not believe that the practice of having the chemist in charge at this port in charge of the samplers could be adopted.

Mr. BATES. A chain is no stronger than its weakest link, and my own experience in dealing with the subject of sugar, which has been coordinated at the various ports to perhaps a greater degree than any other imported material, is rather illuminating. I originally attacked that problem wholly from the laboratory standpoint; that was where the difficulties were all pointed out as existing. It did not take more than a few weeks before it became perfectly apparent that it was useless to improve our laboratory methods without going after the sampling, and after the sampling had been given consideration the question of weighing was just as fundamental, because the whole process of collecting the revenue, of average efficiency attained, is dependent on bringing the probable error of each individual step to the same degree of accuracy. Before we got through we were dealing with every phase of the process of collecting the revenue on sugar, and that experience has led me to be extremely solicitous regarding the character of the samples which were being furnished the chiefs of our laboratories on other things. Certainly, as it has been pointed out, there is no necessity for you exerting yourselves to give an accurate return on what is submitted if the material submitted is not of the same percentage accuracy so far as its representation of the entire importation is concerned. I would like to hear from all of you on this.

Mr. HOWELL. I think that it is very desirable to have the sampling of materials sent to the laboratory under some sort of supervision of the chief chemist. He should give some advice as to how this sample should be taken. This, of course, does not apply to sugar and molasses samples, as provision has already been made for those samples by the sugar regulations. It is vitally important that a proper sample be taken to obtain reliable results, and the average sampler has not the ability to obtain uninstructed the correct laboratory sample. In fact personal instruction from the chief chemist is often already given. It is desirable, particularly in sampling wharf goods, that a representative sample be obtained. Supervision by the chief chemist would accomplish this result. If the standard amount of sample were specified, instruction could be given as to the method of obtaining such sample from each class of merchandise, and the sampler should be held responsible by the chief chemist for the proper performance

of such work. That does not mean of necessity that he should be under direct authority, but the advice of the chief chemist should have great weight with his superior officer. I think the matter could be covered in that way.

Mr. WEST. I heartily agree with Mr. Pickrell and Mr. Howell, and Mr. Howell emphasized the phrase "method of obtaining." The method of taking samples is very important. It would be a good idea to have a list posted on the bins in which containers for samples are kept, giving the amounts required for a sample of the usual materials imported, and instructions to the sampler to consult with the chemist for instructions in taking samples of unusual material. I have had several very, very marked instances where the method of taking was of particular value. Some years ago there was a great deal of trouble in the Customs Service about caustic potash—the percentage of caustic soda in it. We had been reporting percentages, and in a certain protest a broker produced letters from England, from the origin of the sample, stating that the probability of the difference in the percentages was due to the method of taking samples. We thereupon started to take samples from the sides and top and bottom of the containers, and whether they were any different or not I could not say offhand, but I have a faint recollection that they were about the same. If an official method of taking the sample had been in force, I think I would not have had that trouble. I always personally instruct the sampler in taking samples of unusual merchandise.

Mr. CURTIS. I heartily agree with what Mr. Pickrell has said, and I believe that instructions for standard merchandise should be given to the sampler, and where unusual merchandise is to be sampled the chief chemist should be communicated with and asked for instructions as to the manner of taking the sample, the quantity required, and the container in which it is to be placed. Kansas City is fortunate in having a regulation of the tariff stating how samples shall be taken in regard to the importation of ores. It is also fortunate, in so far as the work is performed by Government storekeepers or under the supervision of Government storekeepers, who before proceeding to the bonded warehouses or smelting plants usually visit the laboratory, where instructions are given as to the manner of taking samples, marking, and transmitting. If similar instructions could be given to the samplers by the chief chemists of the different ports, no trouble would be found in getting an average representative sample of all importations, and in some way the chief chemist should be consulted on unusual importations, as to the amount and manner of sampling.

Mr. BATES. I would like to ask Mr. Hynes if he has anything to say on this subject.

Mr. HYNES. Usually we have a sampler who goes around to the docks and warehouses and draws samples, and the merchandise invariably comes to the laboratory. I very frequently go with him on the first trip, if I think he is not likely to understand specifically what I want done; I go with him sometimes on the second trip, and show him how the sample should be drawn. If it is a matter of drawing a sample of oil, I tell him I want so many fluid ounces, but he invariably comes for instructions at the beginning, anyway,

and we have no trouble whatever in the character of samples drawn at our own port.

Mr. BATES. I would like to ask Mr. Pickrell what experience he has had in regard to correcting deficient samples where you questioned the character of the sample which came to you or considered it unsatisfactory.

Mr. PICKRELL. At the port of New York we have no knowledge of the sampling of the merchandise until we receive the samples. Then, provided the sample that comes to us is not of sufficient quantity or it is sent up in not a suitable container, why we communicate with the examiner and state to him the facts, and I have found it generally to be the case that they are willing to do all they can to rectify it. We have the same thing with the drawback division at the custom-house. We used to receive confectionery from them in pasteboard cartons, and I asked them specifically if they would transmit all confectionery to us in glass jars, and if they did not have the glass jars we would be willing to send some down to them, and I stated to them the different size samples we needed for different kinds of confectionery, and they have lived up to that in a very nice manner, indeed. We had experienced trouble in the sampling of opium. I communicated with the examiner and told him I thought it was best to sample every tenth lump and to insert the trier into the center of the lump, and not to send up these samples in paper bags, but in glass jars, and he did that, and the practice has been continued. The same thing with the samples of cheese; they first sent them in paper bags, now they send them in glass jars. We told them the proper size sample we needed. I think, nevertheless, in view of all that, that specifications should be drawn up and that the samplers should be given those specifications and that those specifications be made specific along certain lines of merchandise and general on other lines, and, of course, the chemist, I think, has the right at all times to say whether or not the sample is sufficient; whether or not a sample is representative, in his opinion, of the importation—he can tell probably by the uniformity of the merchandise as represented by the sample—and also whether or not the container is a proper container for that character of merchandise. We all know that certain lines of merchandise will be altered upon exposure to the atmosphere, like gums and fats, and certain things are apt to lose moisture, like confectionery, opium, and so forth, and for that reason containers which will exclude contact with the atmosphere should be used.

Mr. SIMONS. I would like to say that I think it is highly important that the sampling of unusual merchandise, more especially, be under the supervision of the chief chemist. At the port of Baltimore a great many samples come to me without my previous knowledge of their taking. It is customary for the samplers there to report to the examiner. In the case of Chicago, the chief chemist is the examiner also, and he can, of course, designate the quantity of samples and method of taking; in my case perhaps the first thing I know of them is the submission of the samples, which very often have not been entirely satisfactory to me.

Mr. MCSORLEY. I agree with what Mr. Simons has just said. At Philadelphia the first information we have about a sample is when we receive it, and I still maintain that the sampler of things chemical

should be in the laboratory. He should become saturated with chemistry and should get to know from being in the laboratory continually about how much sample we require and the importance and necessity of getting a proper sample. There is only one wharf sampler at Philadelphia. He collects samples for the laboratory of practically everything on the wharf, and while he is a very efficient man I think that the work would be much better done if he had his desk, flasks, jars, and so forth, for collecting these samples in the laboratory. One other point I would like to make is that the amount of the samples sent to the laboratory by the various examiners should be judged solely by the chemist in charge. Very often we are asked to make extremely difficult analyses on minute samples; something that is very hard to do. Of course, it is impossible to ruin merchandise or destroy it, but in a great many cases it is up to the examiner himself; it depends on whether he feels inclined to give a large or small sample, so therefore I believe that not only the amount of the sample but the method of taking the sample, and in fact the whole sampling, should be under the supervision of the chief chemist.

Mr. HYNES. We have three sources of getting samples at Chicago. There is a sampler who serves all the divisions at the depots or warehouses; then the inspectors' force, they draw samples, and also the examiners draw samples of merchandise on inside examinations, and I find no difficulty whatever when conferring with the examiners in getting the proper kind of samples—in fact, it is decidedly to the examiner's advantage to furnish the sort of a sample on which it may be necessary to sustain a possible protest, so that when new merchandise is received the examiner very frequently comes to the laboratory and asks what kind of a sample we want; how large a sample; and how it should be drawn. I find it very easy there, and I suspect the same is true in the other ports, for the chemist to maintain very congenial relations with the examiners, and in that way it works out very well for both of us. I would like to ask Mr. McSorley if his examiners come to the laboratory.

Mr. MCSORLEY. Yes; they come to the laboratory very often, but they claim that that is all the sample they are allowed to take; or they can not destroy the goods. I maintain that we should be authorized to say: "Well, then, we will not make any analysis on that sample. You will have to furnish us with the amount of material we require or else you will get no report." The same thing should apply to drawback work. Drawback work is sampled by inspectors, and every once in a while they furnish us with 10 times as much sample as we require, and the next lot will be one-fourth of what we require; no regularity about it at all.

Mr. HYNES. We have samples sent in by the drawback department, but they invariably communicate with us and ask us how much we want. In fact, there was a shipment of cocaine going to Japan a few weeks ago, and the drawback department wanted us to identify it. They called up the laboratory and wanted to know if a 1-pound can would be sufficient to identify it. Sometimes, as Mr. McSorley says, the examiner is loath to destroy the merchandise. At the laboratory the other day I had a pair of silk tights, just the one article in a shipment, and it would have been very little satisfaction to the impoter if I had destroyed the sample in analysis. However,

by teasing out a little of the yarn—a small quantity sufficient for the microscopic examination—I was able to conclude, perhaps not absolutely, that silk was the component material of chief value, and so returned it. I would not want to swear that silk was the component of chief value, but I thought it more satisfactory to assess the higher rate of duty than to consume the importer's sample; so I think that those problems can be worked out between the chemist and the individual examiner; both will have to give way at times and effect a compromise.

Question 41. What form of label should be used on samples that are sent to the laboratory for analysis? (Philadelphia.)

Mr. MCSORLEY. I have several copies here of the label that is used at Philadelphia on samples that are sent to the laboratory. Each examiner has a number of these labels, and whenever a sample is sent to the laboratory one of them is attached to it with full information, which is put on the report, and is a permanent record for the laboratory. I will pass these around to the gentlemen so they can see them.

(The following is a copy of the sample label:)

C. F. C., Jan. 23-14.

U. S. APPRAISER'S LABORATORY.

PHILADELPHIA, PA., _____, 191 .

Laboratory No.

Invoice designation.

Entry No.

Serial No.

Marks

Consignor

Consignee

Price

Required

Sampled by

Examiner.

We have that information attached to each sample and signed by the examiner, and then in case of protest we can check up the sample from the time it is sampled until the report is made. We have no difficulty now, but once upon a time we did have difficulty, and found it necessary to adopt some such means as this.

Mr. HOWELL. This sample label which Mr. McSorley has submitted seems to cover about what I have on the subject. I have a list of the data that I consider necessary. It includes the laboratory number, the entry number, marks, designation, date received, from whom received, date of report, classification, and remarks. All this is practically covered by his form, which I think is very adequate.

Question 45. Should all samples submitted to the laboratories for analysis or investigation be accompanied by a written request stating the character of the information desired; and in what form should reports be made on the samples submitted? (Chicago.)

Mr. HYNES. The purpose of that query is this: The examiners frequently run into the laboratory with a little bit of starch, or textile,

or something like that, and say: "What is this?" I tell them, and that is the end of it. They do not make any written report upon it, and I am debating in my own mind whether that is an advisable thing to do, or whether we should not insist that everything, no matter how unimportant, be accompanied by a written request for the information. In general when submitting a sample for investigation or analysis they make out a card which accompanies the sample, containing essentially the same information as that contained in the label that Mr. McSorley has passed around and showing what they want, and so on, and there is a written report made, but sometimes samples are brought in, as I just stated, the examiner is in a hurry, or it is a minor matter, and I give him the information and let him go, but whether that should be done even to a small extent I would like to hear discussed by the members of the conference.

Mr. PICKRELL. We had the same experience in the laboratory at New York. The practice that we have pursued in order that a chemist shall receive credit for the work that he does and in order that our record may show that is this: If the examiner wishes simply a verbal report, we ask him then to submit to us just a laboratory ticket similar to what Mr. McSorley has, giving us the necessary information, and we record it in our books and report it. Generally our practice is, and is almost invariably, even if a verbal report is all that is wanted, to make a written report and send that written report down later. Oftentimes they will come up and want tests made on a sample of ore, maybe an alloy, whether it is gold or silver plated; or a sample of starch; or whether some goods are wool or mohair, and in order that our records may be kept clear and the chemists get their credit, we ask them to either send up a sample or just a laboratory ticket, and we make out a written report and send it down afterwards.

Mr. WEST. I found the same trouble that Mr. Hynes and Mr. Pickrell had. I made it a rule that I would not do anything like that, not even for the examiner at the post office. If the post office sends in samples and want to wait there, I tell them whether or not a sample is gold or silver, or gold or silver plated, and in San Francisco we also have to give an approximate degree of fineness of the gold for their values; but I have made it a practice that they have to submit a slip with it each time, and although they wait for the report, after they have left the clerk writes out a letter to the appraiser and it goes up to the appraiser's office, the clerk up there knowing that there is no necessity of it going any further, because the examiner has already received his information. But I do not allow anything to be done in the laboratory without some record being made of it. We in the West there are all of us more or less interested in mines and mining. A great many of the men have some indirect connection with the mines, and they formerly brought in pieces of rock, good, bad, and indifferent, wanting an assay, and in order to obviate any overwork by doing any of these things, I have made it a practice that every sample coming into the laboratory must have some information accompanying it proving its validity and its true connection with the Government.

Mr. BATES. Before we conclude the discussion on this very important subject, I would like to state that it seems to me that the whole matter is one for careful study by a committee. The remarks

I have previously made regarding the appointment of committees hold in regard to the case under consideration. I do not feel that we have the authority at the present time to appoint such a committee and to ask it to go ahead with its labors. It seems to me that it is necessary to secure the approval of the department to do this in order to have it distinctly an official matter. I can see no possible procedure at the present time regarding the appointment of a committee except to delay and have the matter brought to the attention of the department, asking that we have permission to appoint such a committee. Perhaps by the time we have another conference, say a year from now, we will have authority vested in us to take action on such matters as the present one, and our procedure can be much more satisfactorily mapped out. Under the circumstances I would suggest that we take no action on this matter until the Chair can take it up with the department. I would be glad to hear any expressions of opinion from the members of the conference as to such procedure.

Mr. HOWELL. It seems to me that this matter of the sampling is in a way intimately related to the question of the manual of methods, and so forth, because the amount of sample we require for various determinations is related to the method that we use, and it may be possible that the committee which covers the manual may also be able to cover the question of sampling.

Mr. BATES. I would say in regard to that that this matter is one which could very easily be carried on by correspondence, and would perhaps best be done so by a committee by correspondence with the chiefs of the laboratories, and I would further suggest that the committee which will have to do with the manual is already burdened with so much that it would seem to me advisable, if possible, that some of this work be placed upon other members of the conference, particularly where it can be handled largely by correspondence.

Mr. PICKRELL. I think that is an excellent idea, and think furthermore that when we discuss the questions relative to reporting and recording samples that that also should be considered by a committee, and probably we should have two committees; one committee taking up the matter of the manual, and another committee probably taking up authentic samples, and the question of their character and size, and containers of the sample sent to the laboratory, and the manner of reporting and recording of samples. I think two committees could probably take care of all the different questions that we want to refer to the committees, and in that way not burden one committee with all of it, and at the same time have it all properly taken care of.

Mr. HOWELL. In connection with discussing question 45, I would like to submit the following: I think it is desirable that all samples submitted to the customs laboratories for analysis be accompanied by a written request stating the character of the information desired. Much time may be saved and much unnecessary work be prevented if such requests are made. The chief chemist can direct an intelligent examination and analysis if he has such information giving the purpose of the test. Where prejudice or bias might influence the work it might be necessary to work in ignorance of any information about samples, but the duty of the chemist is to assist the examiner or appraiser to reach the desired information as quickly as possible, and several years' experience with examiners has brought the

conclusion that it is better to know from them the kind of chemical examination or analysis required.

Mr. COBURN. I am much in favor of having all samples of merchandise sent to the laboratory for analysis or investigation accompanied by a written request stating the character of the information desired. The form of reports on samples thus submitted would depend largely on the character of the information desired, and I do not think it would be desirable to prescribe any particular form of report.

Question 37. Should all laboratory apparatus and equipment be standardized? (Boston.)

Mr. COBURN. I do not know that it is possible to standardize all apparatus—that is, unless there is a general bureau of supplies. If each port buys its apparatus independently on requisition, they would probably get different forms of apparatus, but I should think that such articles as specific-gravity bottles, burettes, graduated flasks, and similar apparatus should be of a standard kind and standardized by the Bureau of Standards in Washington.

Mr. HOWELL. Question 37 reads: "Should all laboratory apparatus and equipment be standardized?" All laboratory apparatus and equipment need not be standardized, but only that apparatus on which special accuracy depends. If the supplies for the customs laboratories were purchased by a central bureau, the equipment would probably be uniform for all customs laboratories and in that sense would be standardized.

Mr. BATES. I would like to state that there seems to be a difference of opinion as to the meaning of the word "standardized" in this question. I interpret the word "standardized" in question 37 as meaning similarity of equipment and not as regards its accuracy.

Mr. PICKRELL. That is the way I interpret the question. I think it would be advantageous for all the laboratories if the apparatus and equipment were standardized as much as possible; that is, if a certain kind of analytical balance were used in all the laboratories; a certain kind of glassware. I know we have found upstairs that it is better and more economical to use Jena glassware throughout the entire laboratory. The same thing would apply to burettes, pipettes, and volumetric flasks; the same thing would apply to chemicals, heavy acids, and, of course, I think this would properly be handled by a central bureau, provided the apparatus and chemicals are purchased at one place. I believe it would be advantageous to all the laboratories if the equipment and apparatus were standardized as much as possible.

Mr. BATES. It seems to me that here again is an instance in which there might be a committee to take up the question of the more common forms of glassware, etc., which are in use in the laboratories and work up specifications for that glassware, in order to facilitate the purchase and insure the consistency of the product which is purchased. This would require a considerable amount of work. I have taken up with one or two concerns in the country the problem of supplying us with certain types of glassware which are quite generally used, an effort being made to induce these firms to carry a sufficient stock of this material on hand, so that we could get it on short notice. The trouble in securing supplies of this character has been

that we could not secure them promptly. For instance, the factory of Bausch & Lomb is located in Germany, and if Bausch & Lomb would carry a sufficient supply of articles at the Rochester plant they could bid competitively to good advantage and with the added protection to us of being able to supply us promptly. I hope eventually to see a committee appointed to take up this matter of glassware and similar supplies for the laboratories. The details of working out the plan are almost too large for a central laboratory to undertake. It would require quite a force to do it.

Question 38. What apparatus should be tested by the Bureau of Standards before being used in the laboratories? (Chicago.)

Mr. HYNES. The purpose of asking that question was to get an expression of opinion from the individual members as to what apparatus commonly used in the laboratories should be tested by the Bureau of Standards before being used. I just wanted to know what the other chemists thought about it.

Mr. HOWELL. Mr. Chairman, I think the apparatus used in the customs laboratories which should be tested and standardized by the Bureau of Standards is as follows: Balances and weights; volumetric flasks; burettes; pipettes; measuring cylinders, graduated; thermometers; polariscopes and tubes for same; refractometers; colorimeters; measuring rules and calipers.

Mr. CURTIS. Some years ago, shortly after the incorporation of the laboratory at Kansas City, I sent the weights which were used in the laboratory to the Bureau of Standards for verification. These weights were checked up and report made. I endeavored at the time to have one of our burettes, which is known as a Shellbach, calibrated, but was advised that only a special kind of burette would be tested by the Bureau of Standards. From that information it became necessary to test the burettes in our own laboratory, which was done by weighing up the contents at 5 or 10 cc points; I have forgotten the exact points. I believe the Bureau of Standards should check the weights, burettes, and thermometers principally. From those, pipettes and cylinders and flasks could be checked within the laboratory without necessitating the transmission to the Bureau of Standards. These three are essential, and from these the others could be calibrated within the laboratory itself.

Mr. PICKRELL. In the last two years it has been the practice of the laboratory at this port to specify in the requisition that all burettes are to be standardized by the Bureau of Standards; all pipettes to be standardized by the Bureau of Standards, before they will be accepted by the laboratory; all graduates; all volumetric flasks; all weights; all balances; and two or three years ago we obtained from the Bureau of Standards an assortment of pipettes of different sizes, graduates, and volumetric flasks. We have those on hand in the laboratory in order to check up all of the similar apparatus in the laboratory. The practice has been in the last two years, and will be from now on, not to accept anything of this character until it has been standardized by the Bureau of Standards, and whenever you take up a burette, flask, or graduate it has the mark of the Bureau Standards on it, and we know it is perfectly all right.

Mr. CURTIS. That must cost an enormous amount above the original cost of the piece of apparatus.

Mr. PICKRELL. It is taking money out of one pocket and putting it in another pocket. The Government pays for it. The Bureau of Standards is a branch of the Government service.

Mr. CURTIS. But nevertheless it is charged to the collection of the revenue at this or the individual port.

Mr. BATES. I believe you are wrong about that.

Mr. CURTIS. Then I do not understand the question correctly. If an article is purchased standardized; that is, if you call on Eimer & Amend to furnish a standardized burette with the Bureau of Standards' indorsement on it, they will charge approximately \$2.50 in excess of what it would be without that indorsement.

Mr. PICKRELL. This is the proposition: The order is given to some firm by the superintendent of supplies, with the understanding that the articles will not be accepted until passed by the Bureau of Standards. The superintendent of supplies transmits them to the Bureau of Standards. They do the work for the Government. They are paid only for the flask and not for the graduation.

Mr. CURTIS. We have no superintendent of supplies.

Mr. BATES. It is quite apparent that because of this standardization the Government is paying more for its glassware, but it is getting accurate glassware. The manufacturer can not submit any poor quality material and, therefore, he must charge a little more. The Customs Service does not want poor material. I would state the experience of another laboratory here in New York, the chief of which was telling me a few days ago that he bought flasks subject to test by the Bureau of Standards and they were rejected. He had looked the flasks over and while so doing had made a little mark on them. In an emergency which arose about three months later he happened to go into the store of this concern which had furnished the flasks, and they supplied him with new flasks, which he was going to use temporarily before we would send them to the Bureau of Standards to be standardized, and he found the flasks that had been rejected mixed with the new ones. That was their procedure; to send them out again mixed in with the new stock. I state that for the purpose of showing the importance of having glassware tested.

Mr. SIMONS. I thoroughly indorse Mr. Pickrell's method of procedure, and I wish to say that it was tried out in the laboratory of the Bureau of Internal Revenue when I was connected with that laboratory with perfect success. We were always sure of the accuracy of our glassware, and so far as I remember the expense was inconsiderable—no additional expense you might say. The delay in receiving the supplies was a small matter.

Mr. BATES. The expense is an inconsequential matter so far as the Customs Service is concerned in regard to standardized apparatus for use in the laboratories. The first essential regardless of expense, in my opinion, should be accuracy, and I strongly urge all chiefs of laboratories to buy their glassware subject to test.

Question 42. Should the forms and manner of reporting and recording samples for analysis in the various laboratories be standardized? (New York.)

Question 43. What system of keeping laboratory records is most desirable? (New Orleans.)

Mr. PICKRELL. The idea I had in mind when I proposed this question 42 was whether or not it would be best to have a system of recording samples; a card index system or a ledger system, and really I

proposed the question for discussion as to how the different ports reported and recorded the samples, and briefly I will state the procedure we have here at the port of New York. I would like to have every member state the procedure they have at their laboratory, and talk about the advisability of adopting a standard method of reporting and recording samples. We use a ledger system. Samples are received in the laboratory and we have five ledgers. We have the different rooms designated with the letters of the alphabet, A, B, C, D, and E. A different kind of work is carried on in the different rooms, consequently a different character of merchandise is entered up in each ledger. In ledger A are entered all samples of metallurgy, ores, bullion, tin foil, and so forth; in ledger B all merchandise for alcoholic determinations, wines, fruit juices, pharmaceutical preparations; and C ledger would be oils, fats, soaps, and so forth. When reports are made they are checked off with the ledger. In the ledger is entered the entry number, designation of the merchandise; if an outside port the name of the port from where it came, letter number, and any other information that might be pertinent, and also when the sample is reported the chemist's name is entered opposite the number in the ledger, and the clerk puts down in the ledger the number of days the sample was on hand. For my own information we keep a record book, which is made up each day, giving all the samples received during the day, and in that book is given the designation of the merchandise and the day it is entered up and also our laboratory number. In each ledger the samples are given numbers, and the numbers are put on the samples as sent out, so that each room has a serial number of its own, starting the first of the year with 1, and that is entered up in each ledger and put on each sample and on each report, and is checked off with the book. In this manner we can know the number of samples received, the character of samples received, what samples are on hand, and how long they have been on hand. In other words it gives me an intimate knowledge of all the samples in the laboratory. I would like to hear what the method of the rest of the ports is and the advisability of standardizing or agreeing upon some kind of a method that may be simpler or may be more efficient. Maybe a card-index system would be more advantageous.

Mr. BATES. It seems to me that this is a sufficiently important matter to justify our taking the time necessary to ask each member to outline briefly just what their procedure is. I have noticed quite a marked difference in the different ports, and I would like to have this information to refresh my own memory, and I am sure each of you would like to have it.

Mr. HOWELL. Mr. Chairman, I think it is desirable that the forms and manner of reporting and recording samples for analysis in customs laboratories be made uniform. Reports of analysis should be made along the same lines and under the same headings to secure the unity desired in our work. If standard methods of analysis are adopted, a standard form of report on the analyzed samples would naturally follow. Therefore the titles under which percentages were reported would be governed by the methods of analysis used and the subheads provided for in the adopted methods. A standard method of recording samples would precede a standard report and should be uniform with the report.

As to question 43, it seems to me that there are two factors which govern the most desirable system of keeping laboratory records. One is simplicity and the other is permanency. The following system seems to be the most desirable for customs laboratory purposes in New Orleans: Because of the special sugar regulations records of sugar work are kept separate under special serial number. For some reasons, such as convenience in tracing and reporting, and because of their distinct character, drawback samples might with advantage be also given separate serial numbers and their records kept separate.

All other samples received by customs laboratories are examined and recorded as to marks and designations, dated, and given a serial laboratory number starting on January 1. The records of the analytical data on such samples are kept in a bench book—preferably a loose-leaf book—with a page for each analysis. This page shows the laboratory number, date of test, date of report, designation, and any remarks upon sample. The report of analysis is made from the bench book on the prescribed forms of laboratory reports, preferably on a typewriter, making two tissue carbon copies. The original report is transmitted to the examiner to be attached to the invoice or sent to the officer interested. The first tissue copy is sent to the appraiser for filing and the second tissue copy is retained and filed in the laboratory. All these reports are numbered and dated to correspond to the bench book. At time report is made a card is written, showing all data on the report and given the same laboratory number. This card is filed in a card-index case for future reference. The tissue copies are retained in the files for stated periods, say one year, and then mounted in suitable filing books for permanent keeping.

By this method all reports are uniform and easily accessible, and in event of the loss of a report there is little trouble in finding one of the five records on each sample—three duplicate reports, one card index, and bench book.

The card index is filed by subjects, while the bench book and reports are filed by serial number, so that the record of any sample can be found immediately. All other laboratory records, such as correspondence and special reports, are made in duplicate tissue carbon copies and the copies filed in the usual manner of office practice. Sample of indexing card is given. Books for keeping sugar records are provided for by regulations and are supplied as asked for. Loose-leaf bench books would be desirable. Sample of kind used in Department of Agriculture port laboratories is given.

By adopting such tissue carbon copies system on laboratory reports no further copy of reports is necessary, and these copies can be bound or mounted at stated intervals for permanent keeping.

Mr. McSORLEY. When a sample is received in the laboratory accompanied by a label, it is dated and a laboratory number given it. It is then entered in a journal; the laboratory number, the date received, the invoice designation, the marks and the entry number, name of the examiner, and there is a column for date reported; that is left blank for the present. Then we have a number of cards, 5 by 8 inches. These cards are furnished by the Treasury Department. Immediately after the sample is entered in the book one of these cards is made out; the invoice designation is put on the top line and opposite that the entry number, the marks, the laboratory number, date

received, and name of the examiner from whom received. The chemist who makes the analysis takes that card and does all his work. All tests made in connection with the sample are reported on that card, and at the bottom is put our official report. That is initialed by the chemist. The chemist then writes the report on the original report form which all the ports use. That report is copied in the letterpress and sent to the examiner. The journal is indexed according to the name of the sample. The cards upon which all the record of the work is kept are indexed alphabetically in the filing case with the latest number and the latest date first. In certain classes of goods, like wines, for instance, which come to the laboratory with serial numbers, we have one of those 5 by 8 inch cards ruled up in lines. Inasmuch as the laboratory procedure is the same in all cases on those samples, we report the laboratory number, the date received, the date reported, the number of the wine, and the alcoholic content, absolute alcohol by volume, and the page on which copied. On other miscellaneous samples at the top of the card we put the date returned and the page of the copy book on which copied. By this method we have a complete record and can refer at any time in the course of a minute or so to practically any sample we have ever had. Sugar samples are kept in serial numbers. We use practically the same system as they do at New York. We record our readings on tickets which are filed in consecutive order, and these tickets are copied on a report which is copied in the letterpress and sent to the examiner. The record of the dry tests are kept in a special book, the sugar number and from where the sample was received, the percentage of moisture and polaroscopic test, and the test of the dry sample.

Mr. COBURN. Mr. Chairman, at the port of Boston samples that are taken from shipments which are sampled by our own men come under our own supervision. The samples are kept in files by months and are marked with the shipping mark, entry number, name of merchandise. Where an analysis is required, this information is copied into a laboratory notebook and that is the only record which we have. If we wish to look up a record we refer to the laboratory notebook. In cases where samples are sent in from other examiners, such as fabrics, we also have a special book in which we keep the date received, the name of the examiner submitting the sample; also a description of the sample, the marks, and the findings. On drawback work the records are kept in the laboratory notebook under the entry number, so that our records are largely the records of the laboratory notebook.

Mr. SIMONS. Mr. Chairman, our samples are simply entered in a record book, which contains the laboratory number, character of the merchandise, the marks, the date received, from whom received, the results of the work done, and the date when the report was made. The report is made on a specially printed sheet directed to the appraiser. This sheet contains merely space for the date of the report, the marks, character of the sample, and the chemist's findings; it is signed by the chief chemist and the analyst. Now, the details of the work done—that is, all analytical figures—are kept in a separate book with a cross-reference to the original record book. The record book is also indexed, and the samples are entered in it according to the character of the merchandise.

Mr. CURTIS. The samples received at Kansas City originate elsewhere than at Kansas City. We have a record book which contains a page with space for date and the port of origin. These samples are given a consecutive number in this book, together with the entry number of the port; immediate transportation entry, warehouse entry, or lot number, as the case may be, the car number, the weight, and the percentage of moisture. The corresponding number is in a journal. After the analysis has been made, the percentage of material found is entered in this journal. Through connection of the two books, or with the two books, can be had the history of the sample and its analysis. From the journal, certificate is made, giving the assay number, the car number, the weight, moisture, the rewarehouse bond number, transportation number, entry number, or lot number. This is signed by the assayer in charge and transmitted sometimes in duplicate, triplicate, or as high as five certificates are made out, to the collector of customs in whose port this matter originated.

Mr. HYNES. The method at Chicago is very simple. There accompanies the sample a card, 4 by 6 inches, bearing the entry number, the name of the merchandise, and proper mark for identifying it. These marks correspond to the marks and numbers on the invoice or entry. We have a small bench book. These books are numbered from 1 up; that is, the pages are numbered all the way through. We don't start with page 1 in book 2. There are 100 pages in a book. The first page in book 2 is 101, and so on. In this book is entered up the entry number and the name of the merchandise; all the information that is stated on the card and a statement as to what is required and all the figures incidental to the analysis are in there. When we are through the report is made to the examiner on one of the regulation blanks that all the laboratories use, and a copy of that report is kept on another 4 by 6 inch card and filed under the entry number; this 4 by 6 inch card contains a duplicate of the report and also contains reference to the laboratory book number and page number in which the details of analysis appear. The card sent in with the merchandise is filed under the name of the merchandise—roughly grouped, such as spirituous liquors, textiles, things like that, and the report is filed according to the entry number, because when an examiner comes back for information if he has anything it is the entry number, so it is possible always to locate that report by the entry number. Then at the end of the calendar year these cards are transferred to a regular transfer file and filed away. We never have any trouble. We sometimes have to go back for five or six years, but we have no trouble. It requires very little time, and we have not found any defects in it so far.

Mr. WEST. At San Francisco we have gummed labels. I will pass them around, so that everybody can see them. Paper bags are used a great deal for carrying samples to the laboratory and these labels are put on the outside of them. We have in the laboratory 8-ounce cardboard cartons, 4-ounce screw-capped jars, and 2-ounce cork-stoppered vials for our own use in filing away samples for future reference. They are card indexed, so that they can be found both by invoice number and by the name of the material. The samples are brought in and placed on a desk designated for that purpose in rotation, so that the chemist will take the first one that came in. The

clerk keeps a ledger or journal or record, it is immaterial what it is called, and upon it marks the invoice number and gives it a "laboratory number." Following that he puts the name of the importer and the ship, making no mention of what the material is or anything about it outside of the invoice number, laboratory number, name of importer, and ship. We have found that is all that is necessary in the journal. Then on the card is carried the same invoice number and the laboratory number, date received, name and address of importer, the name or address of its source. Following that will be carried everything that is on that invoice, the marks of case (MKC), the number of the range (450/459), invoiced as (rice flour), returned as (rice flour)—this latter is left blank until completed—and the price. Then on the bottom date received (Feb. 15, 1916), number of cards (1), submitted by (Examiner Brown), examined by (F. W., chemist). That has the invoice number and the laboratory number, and it is filed away in accordance with the laboratory number.

Now, to identify the material we have what we call a laboratory analytical sheet, really a Department of Agriculture sheet I am using. All weighing records, and so forth, are kept on this sheet. After the sheet has been signed by the analyst and his finding, the finding is returned on here, "returned as" rice flour, and it goes to the clerk and the clerk marks the date it was reported. That also by simple subtraction of dates gives you the interval it was in the laboratory. The next card is an index card. The substance is rice flour; samples examined from January 1 to December 31, 1916. Then follows a series of lines, each line bearing a laboratory number. Laboratory No. 319, one sample; laboratory No. 360, four samples, and so forth. If at the end of the year the department should request the total number of samples received, from this one card alone you could tell how many samples of rice flour I had examined in the year. As every substance coming in has a card, by adding all those totals up I can tell the total number of samples received. I have made it a practice to keep those cards for everything excepting sugar. For sugar we use the regular blank and official record book, and I see no necessity for making any other arrangement. Everything that comes in the laboratory, whether for drawback or classification, is given a laboratory serial number. That is to be able to identify it. In addition to these we keep a notebook. It is made up simply by taking an automatic numbering machine and starting in and numbering from 1 up to as high as the average number of invoices for the year, and when the invoices have been passed upon they are checked off, and if a messenger comes around stating that an invoice is lost and can not be found, that little book will show us whether we have had it. It is merely to show whether or not we have handled that invoice.

Mr. PICKRELL. There were two things I forgot to mention: Each individual chemist keeps a notebook. In it he records all the information that is on the label attached to the sample under analysis, and he also puts in that notebook all data pertaining to the analysis and his conclusion. The chemists' reports are press copied and the reports delivered to the examiners. I think it would be advisable to leave this matter of reporting and recording samples to a committee to see whether or not there could be a uniform system adopted. It might be more efficient, and might be simpler than any system that is now in vogue at any of the laboratories.

Mr. SIMONS. Mr. Chairman, before we leave this question, I would like to mention "personally presented samples." For instance, an examiner will come in the laboratory and want to know whether a certain sample of paper contains wood fiber; another one may wish a piece of fabric dried, weighed, or prepared for a thread count. Should a record of such requests and informal reports be kept? I think Mr. West's plan is decidedly good. He does not, I understand, receive a sample unless he has a request for analysis, and every sample he receives is recorded.

Mr. WEST. If a man were to come in, as the examiner from the post office frequently does, with a mail parcel that somebody is waiting for at the window, I would give a report of the character of the merchandise, but would get its entry number, and so forth, for record. The idea is to expedite the work for the examiner at the customs window, but other samples would have to be filled out on this usual label.

Mr. BATES. I would suggest that it seems to me very desirable that the laboratory should have a full and complete record of every sample submitted to them. It is essential not only for your protection, but in order that the laboratory may receive due credit for the work that is done. I believe, from my own experience, that if you were to keep a careful record of these personal requests which come in that you would be very much surprised at the end of a year to find how much work you have been doing without credit being received therefor. Especially with regard to some future trouble which might arise regarding a sample. I would strongly urge all chiefs of laboratories to keep a complete record of everything that comes into the laboratory. I should insist, as some of you do, upon having a written request wherever possible.

Question 44. What blanks, specially ruled books, and indexing cards for recording and tabulating are desirable? (San Francisco.)

Mr. WEST. My answer to that was the blanks and cards which I have already submitted.

Mr. BATES. Has anybody else anything to add?

Question 45. How frequently is it desirable to hold conferences similar to the present one? (Boston.)

Mr. COBURN. Annual conferences, similar to the present one, would, in my opinion, be desirable.

Mr. CURTIS. I second the motion.

Mr. HOWELL. I think it is desirable to hold a conference of the chiefs of customs laboratories annually. The benefits to be derived by personal meeting with the rest of the force whose problems are similar to one's own, the discussion and argument as to the best method of procedure and practice can only be obtained by holding such a conference. More actual work toward unification can be done in three days at a conference than by six months of correspondence. The meetings should be held annually, because during such a period new problems arise and changes should be made at such intervals. I might add that I have a little personal request to make: I should prefer to have these conferences held in the fall, some time between September and December. The work at the port of New Orleans is especially heavy from January up to September. We do the bulk of our sugar work during those months, and it is rather difficult to

get away without inconveniencing the work of the office. During the period from September to December it would be possible to get away with a great deal more comfort, and if agreeable to everybody I would like to make that as a personal request.

Mr. CURTIS. I think, on account of the inclement weather we have in New York now, the month of September or October would be more desirable, especially to those who are coming from a warm climate.

Mr. BATES. I would like to hear from others on this matter. I think it is rather important that we incorporate the views of the members. While the committee appointed may see fit to take action, as I trust it will, regarding the permanency with which these conferences should be held in New York, the department would like to hear from the members as to the advisability of having these conferences.

Mr. PICKRELL. Mr. Chairman, there is no doubt but what the needs that have been brought out here during this conference will not all be put into effect one year from to-day, and I think there will be many things that can be discussed that will be beneficial to all the laboratories at that time, and probably a lot of things that will have been put into effect between now and that time will also need to be discussed. I am heartily in favor of making this an annual affair as long as we see fit and to recommend to the department that such be the case.

Mr. WEST. I agree heartily in all the views expressed, but somehow or other I have always set aside the 1st of May as the time when conferences should be held. It seems to me we have gotten over the spring fever by that time and we seem to be in better trim for a conference. The weather here would be good and the people coming from the South and far West would suffer no inconvenience. I think the 1st of May is a good time. It does not interfere with anybody's vacation and I think that the human system is in better condition on the 1st of May than any other time in the year.

Mr. HYNES. I do not think it is necessary to express my approval of an annual conference. I think that is understood. The very fact that men in nearly all walks of life, from master janitors up, have meetings of one kind or another for the purpose of exchanging views on their respective lines is *prima facie* evidence of the necessity of these meetings. We have our annual chemists' meetings. In addition to that we have monthly meetings. Societies of all kinds, scientific and others, have meetings at different periods of time for the purpose of furthering their mutual interests. I see no reason why the customs chief chemists should be any exception to the rule. If for no other reason than the very thing we are meeting for, that we get the ability of all the customs chemists to bear upon the problems of each, then an annual meeting is not only advisable but absolutely necessary. Without it, it is impossible to accomplish that object.

Mr. SIMONS. Mr. Chairman, I only wish to say that I am thoroughly in favor of continuing, at least for the present, the holding of annual meetings. I think the work that we have done or will have done at the end of this meeting has certainly shown the necessity for such conferences.

Mr. BATES. Is there any further discussion? If not, we will pass to the next question.

Question 47. Should an inventory of all laboratory apparatus be kept; and if so, how? (Chicago.)

Mr. HYNES. I asked that question to determine what is the practice at the other ports, to find out whether they were in the habit of keeping an invoice of all apparatus or not, and also what method is used. I think that at the port of New York they do keep an invoice of all apparatus, but I believe they are fortunately situated in having a man who can devote his time to that, which may not be the case in a smaller port.

Mr. PICKRELL. I can state the system we have in the handling of our supplies and apparatus and the inventory we keep. Upon the receipt of apparatus and chemicals in the laboratory they are entered up in a card-index system. We have two sets of cards; one set contains apparatus, and the other set contains chemicals. We put on the cards a description of the chemicals or apparatus and also enter the quantity. They are then put in the storeroom or stockroom. As each individual chemist wants a piece of apparatus or a reagent he makes out a small requisition and gets what he needs, and that requisition is put into a small box. The first day of each week, on Monday, the man in charge of the storeroom takes those requisitions and checks them off on the card index—that is, he subtracts. Take, for instance, we have 24 bottles of hydrochloric acid in stock. During the week two bottles were taken out of the storeroom. He will put down 22. In making out the card in the beginning there will be put down the time that the 24 bottles were put in stock. With 250-cubic centimeter beakers it would be the same procedure, and in that way we know at any time the quantity that is on hand of any particular piece of apparatus or any chemical; and then when it comes time to make out the annual requisition just prior to the beginning of the fiscal year, you can turn to your card index and tell the quantity that is on hand and also the quantity that you used in the past year or six months, so as to give you an estimate for the next annual requisition. Also, we have an inventory of all the apparatus in each one of the rooms. That is checked up each year. If we have glassware that is moved from one room to another, the fellow that has that in charge makes his changes in his inventory, so that we have a complete record of everything in the laboratory.

Mr. BATES. Do you keep any special record for platinum ware?

Mr. PICKRELL. We have a card index of the platinum ware. It is all kept in a safe, and one fellow has that in charge. We have in the safe a number of drawers, and on the outside of the drawer is tagged what it contains, like platinum crucibles, platinum spatulas, or whatever it might be. Each drawer is subdivided into sections which are numbered and which contain each individual piece of platinum. The card index gives the description and weight of platinum and number of section the piece of platinum is in. For instance, you want platinum crucible No. 10, and inside platinum crucible drawer No. 3 would be a little section No. 10, and that crucible would be the one corresponding to the card index. If a chemist wants to use this particular platinum crucible, the man in charge will give it to him. Then he takes his card index out of the file and writes the date and the chemist's initials. All the platinum ware is returned that night and put back in the safe. It is kept in the safe always at night.

Mr. HOWELL. Mr. Chairman, probably the port of New York has a great deal more to take care of than the rest of us, but nevertheless I think that we should all keep an inventory of laboratory apparatus. I think such an inventory should be divided into temporary and permanent apparatus lists. It is manifestly impossible to keep any permanent record of reagents and quantities of easily breakable glassware which is in constant use. The list of equipment of permanent apparatus can be kept and added to from time to time without any difficulty. A temporary list of breakable glassware could be made every three months, so that some idea of the stock on hand might be had. In such manner a fairly accurate list of the laboratory equipment may be kept and the annual requisition for supplies be made on the basis of stocks on hand. It might be well at the same time to keep a list of the books and periodicals in the library in order to make the records complete.

Mr. McSORLEY. At Philadelphia we keep no inventory of either laboratory apparatus or chemicals. I think it is a very desirable procedure in large laboratories like the New York laboratory. We have our chemicals and apparatus filed in cases but have not enough to warrant, in my opinion, the keeping of a special inventory. Whenever we open the last bottle of any chemical we put the name of that chemical on a want list provided for the purpose, and the same way with apparatus; and when sufficient amounts of supplies are needed we put in a requisition for them. We do not order annually, as I understand New York and New Orleans do. We make our requisitions probably every three or four months, just as the demands of our laboratory require. As regards platinum ware, that is kept in a locked cabinet. We have such a small amount of platinum that it is not necessary to keep a special record of it. Probably New York should keep a record. If I were in charge of this laboratory I would undoubtedly keep a record, but in a small laboratory I do not think it is necessary.

Mr. COBURN. We do not make any permanent inventory of our apparatus. I think last year I went through it all—about a year ago—in order to estimate how much stock we would need, for another year. The method of knowing what supplies we need from time to time is very similar to that described by Mr. McSorley. We have a want list and we jot down the chemicals that are getting low or the apparatus, and when we get a sufficient amount for a requisition we put one in.

Mr. SIMONS. We have no special plan as they have in New York. In fact the size of the laboratory would hardly warrant one. We simply do as the ports of Philadelphia and Boston have described. We keep a want book in which are recorded articles, apparatus or chemicals, which from time to time are running low, showing the quantity on hand and the approximate time needed for replenishing them.

Mr. CURTIS. We follow a similar method of procedure such as Mr. McSorley has described. We keep a requisition book in which we mark down the chemicals which are running low and the apparatus. I consider an inventory in a laboratory where a large amount of breakage occurs daily and a consumption of standard chemicals almost an impossibility. It would never be correct. That which was

represented yesterday would be changed to-day. For that reason I have never made any attempt to keep an inventory. The platinum ware we have on hand in Kansas City is kept under lock and key and only used as required, and then after finishing with it, it is returned to the proper place.

Mr. WEST. I personally think that an inventory is absolutely necessary. When I read the question, "Should an inventory of all laboratory apparatus be kept; and if so, how?" I concluded that information was being sought. I would like to speak about the storeroom cards Mr. Pickrell spoke about. We have about the same idea. We have a card for each individual article and chemical in the storeroom and the inventory is ruled off in four columns and the cards are ruled the same way. There is a column "On hand at last return." When the chemist goes to the storeroom to get a chemical or a piece of apparatus he takes with him the card. He gets what he wants and marks down in the column "Expended" what he has taken out. If he notices it is low, he brings that card in and hangs it on a hook at the chief's desk. At the end of the month the chief takes the cards and from them makes up his requisition. That is the procedure for keeping tabs on what is in the laboratory and what has been expended. Now, for the inventory I have arranged it into classes from A to F. Class A embraces office furnishings.

Mr. HYNES. We do not keep an invoice of the apparatus. I frequently thought that we would institute a system of keeping a record especially of the nonperishable apparatus, beakers and watch glasses and so forth; chemicals, I do not think we will. I am not sure about that. I think it will take too much time. I think it would be unsatisfactory to try to keep track of the perishable stuff. I think probably a record should be kept of all permanent apparatus.

Mr. WEST. I would like to speak on those four columns, "On hand at last return," "Received since," "Expended," and "On hand" on the sheets submitted. From that anyone is able to get an idea of what has been used in the past year. Mr. Bates spoke about the small amount of money which it took to run all these laboratories in one year, and if those reports were made out faithfully and turned in there would be absolutely no doubt as to what the cost was. Everything expended is given right there. I think it is an excellent thing to keep track of these things, to see how much it cost the chemical laboratories of the Government for one year to run.

Mr. BATES. If there is no further discussion we will proceed to question 48.

Question 48. Is it advisable and desirable to replace the laborers in the laboratories with "laboratory helpers" or "laboratory assistants"? (San Francisco.)

Mr. WEST. To me this is a very pertinent question. The assistant in our laboratory is a laborer, slow moving and slower thinking. He has no idea of cleanliness, order, or general neatness. If anything outside of the washing of a beaker or a similar task is asked of him, he has recourse to the fact that he is only a laborer and "ain't supposed to know anything about such things." I have an aversion for things of this kind. I regard efficiency as the first requisite and when a person is told to do a thing, he should do it and do it as quickly as he possibly can. No back slack; no telling how the fellow

they worked for before had done it or to say "Don't you think it would be better to do it some other way?" I would like to have it so that a person appointed would not know a thing. I would show him how things were to be done. The only way of getting around it is to answer the original question; it is both advisable and desirable.

Mr. CURTIS. This question came up in the Kansas City laboratory shortly after its incorporation, about 1908. We had working there a young man whose title was that of laborer. I want to say that if I told him to drop an article he would drop it. He received his education in the best school of discipline in the world, the United States Navy. When I told him to drop an article I was ready and willing to assume the responsibility for the result. I made an effort to have his title changed from that of laborer to that of assayer's helper. One reason was that the custodian, or rather the assistant custodian, of the building contended that all employees bearing the title of laborer should be under his jurisdiction, which is in conflict with my idea. I was successful in having that young man's title changed from laborer to assayer's helper. He knew absolutely nothing of laboratory work when he entered there, but after a period in his position as laborer in the laboratory he was qualified to pass the examination of assayer's helper. I would not ask for a better man. Some years ago the question came up why assayer's helpers or laboratory helpers, as the case may be, were not employed instead of laborers. My reason for not wanting a laborer was in anticipation of some day hearing the remark, "I am only a laborer and not qualified to do technical work." It is my idea that a laboratory helper could be obtained from the high schools, where young men would be glad to enter the service, in a measure as an apprentice, as in the case of the mint and assay service. In that way you could call upon the laboratory helper to do semitechnical work which did not require the services of a chemist. You could also call upon him to do clerical work, whereas if his title were that of laborer he could readily decline and be backed up by the Civil Service Commission. For that reason I brought the subject to Mr. Pickrell's attention some four years ago. I believe he gave me a reason at the time why he could not get laboratory helpers, which I presume he will mention later on, but I would like to go on record as being strongly in favor of a position being created the title of which would be laboratory assistant, laboratory helper, or some semitechnical title, giving him a higher standing and an opportunity for more pay than the title of laborer at the present time demands.

Mr. PICKRELL. Mr. Chairman, I heartily agree with Mr. West and with Mr. Curtis. This is a very important question. I think the last place a laborer should be appointed to is the laboratory. I do not know of any other branch of the Government service—any technical branch of the Government service—that has laborers as laboratory helpers but the Customs Service. I know they have helpers in the mint and assay service, in the Bureau of Standards, in the Bureau of Plant Industry, and I do not think there is a doubt in the world but that if we had laboratory helpers or assistants in place of laborers we would increase the efficiency of the laboratories and get young men, good men, more apt and of greater intelligence for the same money. They would not be working with one eye on the clock. We would not have to tell them what they had to do. They would not be avoiding

work as the ordinary laborer does, but would be more or less ambitious. I think that the laborers in all laboratories unquestionably should be replaced by laboratory helpers or assistants. I know at the port of New York we have six laborers. It is one of the biggest problems that the chemist in charge of this laboratory has; that is, to contend with the laborers.

Mr. CURRIS. In addition to what I have said, the question came up in a previous paragraph as to the sampling under the supervision of the chemist in charge. If there were laboratory assistants the taking of samples could be delegated to them by the chemist in charge, to be taken under their supervision instead of the chemist in charge. I speak from experience because a young man employed in the Kansas City laboratory has at times been delegated to go to the smelters in the Oklahoma district to supervise the receiving and sampling of ore. He is an intellectual young man, a high-school graduate and has served two years at a university. That is the kind of a man we would be able to get as laboratory assistant, who would use that as a stepping stone to something better in the Government service.

Mr. HOWELL. Mr. Chairman, I think it is decidedly desirable and advisable to replace the laborers in the customs laboratories with laboratory helpers. The character of the work usually required by chemists from their helpers is such that an ordinary laborer can not perform it. It is only by securing a man of exceptional intelligence from the laborers' force that the work is done. An efficient helper can save much time and be of great assistance in analytical work and the slight difference in salary would be adequately repaid in increased efficiency of the laboratory personnel. The only work which a laborer may do in the customs laboratories is that of washing and cleaning apparatus.

Mr. McSORLEY. I am heartily in accord with this suggestion to replace the laborers in the laboratories with laboratory helpers. We are very fortunate at Philadelphia at the present time in having a laborer who is most efficient. He is equal to anyone that I could get as a laboratory helper, but some other time we might not be so fortunate. Once in a while we require the services of two laborers. The second laborer is usually so far from being the equal of the regular laborer as to only emphasize the fact that it is just a matter of chance at this time that we are well supplied. I think as a general proposition we should have laboratory helpers who are civil-service men, and who would have a chance to advance as they grow up in the service.

Mr. SIMONS. I would like to ask, in view of the fact that this is to be a civil-service position if it is established, what the qualification of the laboratory helper would be? Will he have to stand a technical examination of any description?

Mr. CURRIS. Mr. Chairman, I would like to answer that question in so far as I believe the Kansas City laboratory is the only laboratory having a so-called technical helper. The examination consisted of the apparatus used in a chemical laboratory; the making up of certain simple solutions and a few minor questions which any young man who had attended high school and studied chemistry could answer. One who was qualified to pass you could rest assured would know a little about chemistry and would not be likely to drink sulphuric acid instead of water.

Mr. WEST. Inasmuch as the examination of the Department of Agriculture laboratory helpers is gotten up by the Civil Service Commission, I think there would be no doubt that that body would know just what kind of questions to frame for it. It is not a new position.

Mr. PICKRELL. I looked into this matter a couple of years ago. I looked over a number of announcements for the position of laboratory helper and laboratory assistant, and the character of the examinations held for the laboratory helpers does not require any technical education. A general examination is given in the ordinary subjects taken in grammar schools, probably some high school subjects and any experience they have had in a laboratory gives them necessarily a higher rating in the examination. The position of laboratory assistant is considered a higher position than that of laboratory helper. The position of laboratory assistant requires a certain amount of technical knowledge, and is practically an intermediate position between laboratory helper and assistant chemist. If we could get one step in advance—get laboratory helpers in place of laborers—it would be in the line of progress.

Mr. BATES. I have been very much interested to hear what the members of the conference have had to say upon this subject, and a number of the remarks seem to come very much from the heart. It seems to have made quite an impression on all of us. The subject seemed to me to be so important that I have talked with several of the members of the conference at different times. About a year or a year and a half ago I wrote a report to the department upon this matter in which I presented quite strongly the importance of eliminating to a very large degree at least the laborers from the laboratories and replacing them with so-called laboratory helpers. This report was considered very carefully by the department, and action was not taken upon it, owing to the fact that we are now living under unusual conditions so far as the Customs Service is concerned. In many cases laborers, as fast as places became vacant, were being eliminated from the service and, therefore, the department, owing to the necessity for reducing expenditures, did not favor additional expense regarding laboratory helpers. In this report I suggested that the positions as they became vacant should be replaced by laboratory helpers, but the reason given as to why this was not possible was that the laboratories could possibly get along with less labor and therefore a reduction in expense made as a result. For the satisfaction of the members of the conference I would say that I look forward with confidence upon a return to normal times, that the department will act upon this report to which I refer, and that we will succeed in obtaining laboratory helpers in the strict sense of the word. The Bureau of Standards, I believe, took the initiative in the Government service in regard to this matter and established two classes of laboratory assistants and laboratory helpers. The laboratory assistants come in at \$900. We get for that salary a flood of applicants, who are university graduates, and for the laboratory helpers we have several grades, so far as their salaries are concerned. I see no reason why the same procedure, which has worked out so admirably and has been adopted by other Government bureaus, should not be applied to the Customs Service. The establishment of several grades of salaries—by several grades I mean at least two grades—a young man

coming in with no experience at a lower grade, say \$840, has something to look forward to in the way of a promotion. Since similar positions are specifically provided for by act of Congress in the departments at Washington, and lists have been supplied by the Civil Service Commission, all that the Customs Service would have to do would be to simply have men certified by the commission and we would be put to no further trouble in the matter. The requirements and the character of the examination, which have been so thoroughly gone into by the experts of the Bureau of Standards, are such that they would answer our purpose I believe admirably. I trust that at no very distant date we will have competent help, which we so sadly need at the present time. In this connection I would like to add that the designation of many of the scientific employees of our laboratories is quite anomalous; that is, there are a number of designations in the Customs Service. I would like the members of the conference to give some little thought from time to time as to what grades of scientific men we need for the Customs Service. These grades I believe should be uniform at all the ports. Before adjourning I believe we might very properly take up the appointment of the committee for the laboratory manual.

Mr. PICKRELL. There are one or two matters I would like to speak of. I think you practically touched upon one of them in the last part of your remarks. I think that it would be advisable if there were a uniformity of designations in the various laboratories of the Customs Service. I know in the laboratory here in New York we have three or four different designations of employees.

Mr. BATES. This is such a vital and important subject that I believe we might very profitably spend a few minutes bringing out the views of the different members. I would be glad to hear from anybody else.

Mr. WEST. Aside from the value to the chemist, I think the thing, looked at purely and simply from an efficiency standpoint, if they were all given regular titles it would materially help the accountancy department.

Mr. McSORLEY. I am in full accord with what Mr. Pickrell has said; there should be uniformity of designation in the various laboratories.

Mr. CURTIS. Mr. Chairman, I agree with what Mr. Pickrell has said, but I believe the designation of chemist should be retained in the service and not have the chemists classified as examiners, thereby losing their technical title, as it were.

Mr. McSORLEY. Undoubtedly they should be classed as chemists. The men are doing chemical work. It seems to me from what I have heard—I have not been very long in the service—in former times there were nothing but examiners in the laboratories doing chemical work. Latterly they have changed the designation to chemist, and I think that is the proper title.

Mr. HOWELL. I think I agree with Mr. Pickrell and Mr. McSorley on that subject. It seems to me that we should be given the designation of chemist, particularly as we are doing chemical work. In my own case I passed an examination both as examiner and chemist. It seems to me it would be easy to designate the men in charge of the laboratories at the various ports as chemists in charge. It is simply a question of giving them their due.

Mr. BATES. If there is no further discussion I will bring up the question of appointing a committee.

Mr. HOWELL. I would like to move that it is the sense of this conference that the chairman be included in the manual committee. I believe that the manual is one of our most vital needs. I consider it is necessary that this committee be near enough to make personal interview possible, and I think that our purposes would be very well served if the chairman of this conference were on that committee. I would like to move that it is the sense of this conference that he include himself as a member of that committee.

Mr. CURTIS. I second that motion.

Mr. WEST. I wish to offer an amendment that the chairman be a member of all committees.

Mr. HOWELL. I accept that amendment.

Mr. CURTIS. I think we would facilitate the work by having him at Washington, where he could get the ear of those higher up and likewise get all this printing done for us. If it were left in the hands of others the chances are it would be pigeonholed and forgotten, and I second the motion.

Mr. HOWELL. The only reason I did not make the original motion in the form Mr. West suggests is that I did not want to see the chairman burdened with everything in connection with the conference.

Mr. BATES. In view of the necessities apparent to all of us of having the committee on the laboratory manual one which can cooperate with the minimum of resistance, I would appoint to act upon that committee Mr. Pickrell and Mr. McSorley. I believe that will meet with the entire approval of the conference.

Mr. HYNES. I think I express the sentiment of the members assembled here when I say that we have nothing but admiration for your good judgment in the appointments you have made.

Mr. BATES. If there is no further business to come before the conference this afternoon we will adjourn.

THURSDAY, *March 9, 1916.*

Upon the conference being called to order, the committee on recommendations submitted the following recommendations, which were read by Mr. Howell, of New Orleans:

REPORT OF COMMITTEE ON RECOMMENDATIONS APPOINTED AT THE FIRST CONFERENCE OF CHIEFS OF CUSTOMS LABORATORIES, AT NEW YORK, N. Y., MARCH 6, 7, AND 8, 1916.

1. In view of the fact that the discussion of practically every question before the Conference of Chief Customs Chemists has brought forth the urgency and imperative need of some sort of a central bureau or clearing house, and that some of the most pressing difficulties of the customs laboratories will be obviated by the establishment of some such bureau, it is respectfully and earnestly recommended to the Secretary of the Treasury by this conference that some such central bureau be inaugurated or some suitable official be designated as supervisor of customs laboratories, to be located at Washington, D. C., to whom matters pertaining to the customs laboratories may be referred, and where the needs and aims of the customs laboratories may be judged by a scientific man, who can also supervise and standardize the work of the laboratories and recommend such improvements to the Treasury Department as the service may require.

2. A review of the remarks made by members of this conference has emphasized the necessity of a manual containing uniform methods for the analysis of all materials submitted to customs laboratories, and it is recommended that the committee on manual suggested by this conference be empowered by the Secretary of the Treasury with authority to prepare and submit for publication such a manual.

3. It has been brought forth in this conference that in the interest of economy and efficiency there is urgently needed a uniform method of taking and forwarding all miscellaneous samples of merchandise to the customs laboratories. It is therefore respectfully recommended to the Secretary of the Treasury that some such method be adopted.

4. The evident value, in the interest of efficiency, brought out by discussion and exchange of opinion at this first conference emphasizes the need for further conferences. It is therefore respectfully recommended that the Secretary of the Treasury authorize similar conferences annually.

5. It being the sense of this conference that the efficiency of employees and their value to the service is greatly dependent upon the permanency of their positions, and inasmuch as this can be insured only through civil-service appointment, it is recommended that appointments of every character in the customs laboratories be made from the classified service.

Respectfully submitted.

J. A. HYNES, *Chairman.*
W. L. HOWELL.
FRED WEST.

These recommendations were considered by the conference severally, and, after an informal discussion, which is omitted from the record by request of the conference, were unanimously adopted as read.

The conference then adopted the following resolution by a unanimous vote:

Whereas it is recognized by the First Conference of Chiefs of Customs Laboratories that they each, individually and severally, feel indebted to the Hon. J. K. Sague, appraiser of merchandise at the port of New York, and to Dr. E. R. Pickrell, chief chemist of the United States laboratory at New York; and

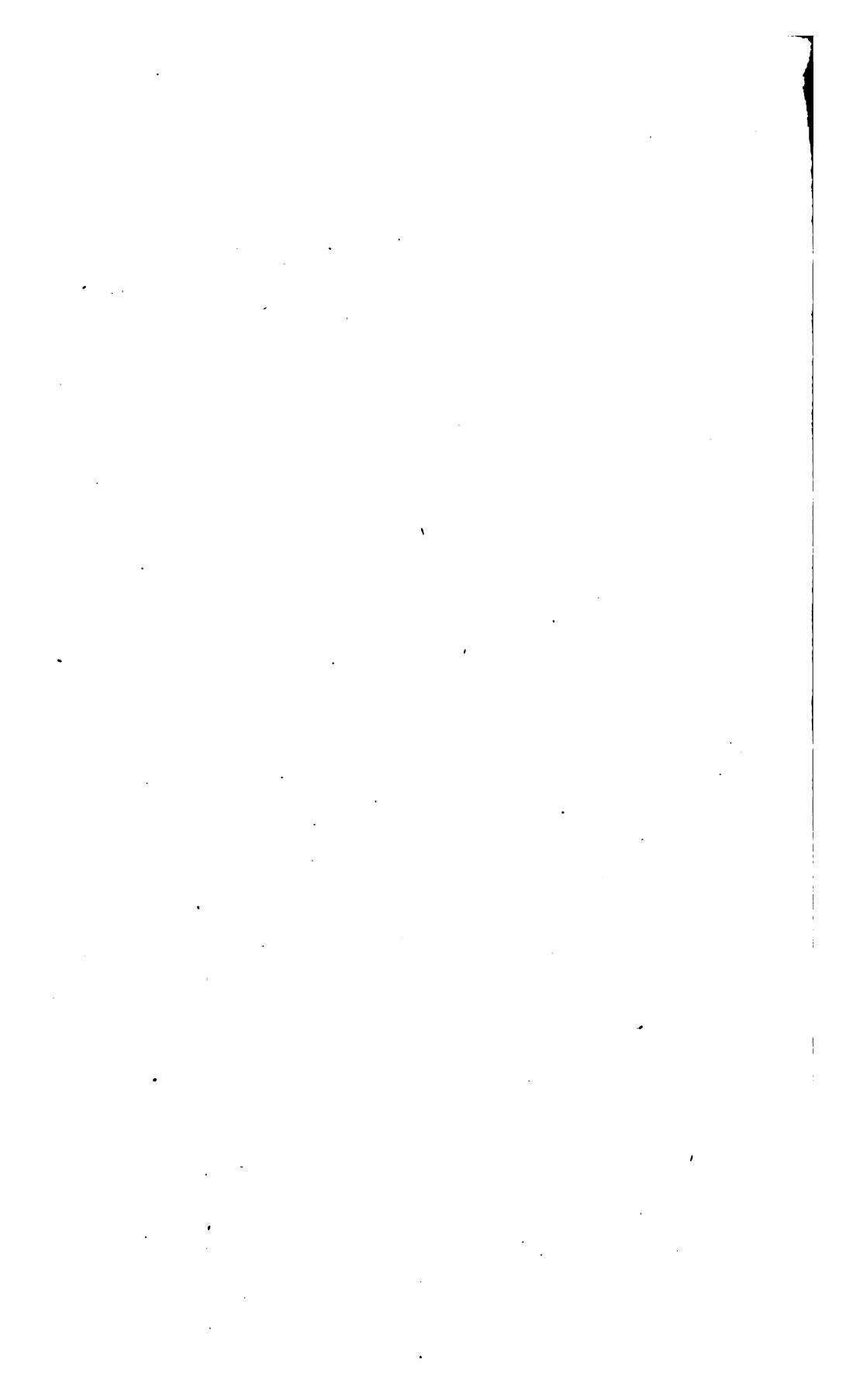
Whereas they desire to express their sense of appreciation of the many courtesies shown: Therefore be it

Resolved, That we, the members assembled in conference, take this opportunity to record our appreciation of their hospitality and the cordial reception accorded us, and ask that a copy of these resolutions be transmitted to them.

After which the conference adjourned.

NOTE.—The department approves of the several recommendations of the conference, and will, as soon as practicable, take the necessary steps for establishing a central bureau under the direction of a supervisor of customs laboratories.

The committee appointed by the conference to prepare the manual is authorized to proceed with the work and to submit a copy for the approval of the department. It is suggested that this committee include in the manual the necessary instructions for taking, preserving, and forwarding samples.



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